



COVID-19 TREATMENT CENTER

Government Medical College Kottayam



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COVID CONTROL ROOM
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COMPONENTS NEEDED FOR COVID HOSPITAL

The components will be discussed under the following headings:

INFRASTRUCTURE

- 1)Control Room
- 2)Triage
- 3)Red, Green, Yellow Zones
- 4)Transportation facility -Inside, Outside (Eg: Home quarantine)
- 5)Isolation room
- 6)Isolation ICUs
- 7)Isolation Wards
- 8)Accommodation for staff
- 9)Store
- 10)Waste collection and disposal

EQUIPMENTS

- 1)Control Room
- 2)Area wise requirements-Equipments, Supplies and Drugs (Annexure 10)
- 3)Ambulances
- 4)Buses

HUMAN RESOURCE

HR Groups are needed for various areas like administration, managing stock and supplies, patient care, education and support systems.

DYNAMICS

This involves the *escalation of infrastructure, manpower, rearranging the existing utilities, security systems, ensuring food and supply chain, augmenting controlling and regulating teams.*

ANTICIPATION

1. Types of cases that a Medical college has to handle if a community outbreak of Covid-19 occurs:

- a. Covid cases - with moderate or severe respiratory issues
- b. Cardiac and vascular emergencies
- c. Trauma cases
- d. O & G emergencies and delivery
- e. Psychiatric emergencies
- f. Dialysis –maintenance and urgent
- g. Medical emergencies
- h. Surgical emergencies
- i. Semi emergency cases which cannot wait for one month
- j. Cancer cases
- k. Paediatric emergencies

i)The number of trauma cases are expected to go down.

ii)The psychiatric and cardiac emergencies are expected to rise.

iii) The O & G emergencies will most probably remain the same.

2.The following will be the POINTS OF ENTRY:

- a. ***Covid clinic with facility for triage, resuscitation and transportation – separate entrance (gate 2)***. This is situated in present ward 1 in ABC Block. It has *red corridor* to isolation IP areas.
- b. Routine *existing casualty* for trauma, medical and surgical emergencies, psychiatric cases
- c. Entry in to *Cardiology block* from *existing casualty* to Cardiology
- d. For O & G- from *casualty gate* directly to Gynaec casualty
- e. For *Paediatrics*-directly to *Children's Hospital*

Patient flow from each point will be detailed. For Cardiology, CVTS, Gynaecology, Paediatrics, Nephrology, Oncology, Anaesthesia the corresponding HODs has prepared and submitted SOPs for Covid patient care in the respective departments in respective blocks (See Annexures-1,2,3,4,5,6,9).

3.General Principles for Managing Infrastructure and To Ensure Supplies

A. Space

1. For clinical care – This will be needed to manage Covid cases and non-Covid cases.

For Covid cases-Areas needed include:

i) **Covid clinic/Casualty**

- Triage, Primary care area, Resuscitation Room

ii) **Inpatient Facility**

a) For stable patients:

- Isolation Rooms
- Special wards - This can be grouped as beds with oxygen or without oxygen.

b) **For unstable patients**

- ICU- ICU beds can be grouped as those beds with ventilator facility/beds which can be upgraded with ventilator facility/those without ventilator facility.

iii) **Sampling Room**

For stable patients getting admitted as well as those who are going on home quarantine

B. Equipment

Biomedical wing to keep all equipments in working condition, to list them out, to identify limiting factor for escalation in any area and acquire it. One urgent issue is availability of video laryngoscope for intubation.

C. Ensure supplies

Will need items for advanced respiratory care. One team should be entrusted to prepare the list and ensure availability. There should be a feedback loop to trigger low stock position and replenish it.

D. Human resource – this is needed for

- a. Clinical care
- b. Education and training of health care workers
- c. Preparing and implementation of SOPs and guidelines at institutional level
- d. Staff welfare and motivation
- e. Communication and reporting – across health care workers, to higher authorities, to media
- f. Managing the supplies and stock
- g. Cleaning, disinfection and waste disposal

- h. Core group for overall administration including a 24hr control room
- i. Covid Committee who updates on state level guidelines, monitors hospital level activities and coordinates with state and district administration
- j. Surveillance team to ensure proper cleaning, disinfection, ensure social distancing, ensuring that the SOPs are followed
- k. Staff accommodation and transportation
- l. Food committee to ensure food availability to patients and staff.

Teams and actions

Core group 1 – Members

- a. Dr. Jayakumar, Superintendent
- b. Dr. Lijo, ARMO
- c. Dr. Saritha Shenoy –Faculty
- d. Mrs. Prasanna – Nursing Superintendent
- e. Mr. Ullas – Health Supervisor
- f. Mr. Biju – Lay secretary
- g. Mr. Ajayakumar – Sergeant

Duties- Overall management, control room, authenticate SOPs and action plans, recruitment of infrastructure and manpower as and when needed, act on surveillance reports, feedback loops, coordinate activities of all other groups, keep updated with orders and guidelines issued by the government time to time and ensure proper dissemination.

Core group 2 & 3- Constituted in same lines and will take over if group 1 falls sick or goes on quarantine. These groups will be doing jobs like managing accommodation, transportation, ensuring supplies, keeping a watch on global, national or state trends, news on guidelines, media, social media and will be updating to group 1.

Incident Management Group: Control Room

Education and Training

Headed by Dr. Suresh Bhatt. Other Members – Dr. Murali, Dr. Saritha, Dr. Jose and Nursing Education Wing- responsible for basic training of all staff and doctors about Covid outbreak, management, guidelines, institute policies and protocols, PPE donning & doffing and waste disposal. This can be done through direct classes with less than 10 audience or utilizing IT or social media. They are responsible for updating the concerned staff about any change in management policies or protocols.

Preparing and Implementation of SOPs

Dr. Irshad, Dr. Kiran and Dr.VR. Krishnakumar to prepare SOPs regarding triage, admission, medical management, categorisation depending on severity, transportation, lab investigation, indications for ICU admission, shifting out from ICU, discharge etc. For Cardiology, CVTS, O & G, Dialysis, Cancer and Psychiatry; the corresponding department to prepare SOPs and patient flow chart for general patients, Covid positive cases and patients on quarantine.

Staff welfare and Motivation

Dr. Saritha Shenoy, RMO, Students Union and Nursing Education Wing – Ensure motivation of staff for hard, committed work for any inflow, ensure that the apprehensions of the staff and family welfare are taken care off, ensure food, accommodation and transportation facilities for them, ensure proper treatment is given to anyone who falls sick.

Cleaning, Disinfection, Waste disposal and Surveillance

Infection control wing, QIC and housekeeping

Communication and Reporting

Core group 1 & 3

Supplies and Stock including O₂

Core group 2

Accommodation, Transportation committee

Vice Principal, RMO, hostel wardens, Clerical staff – to list out facilities, take over, allot facilities. Ensure transportation facilities for those who are staying at nearby homes and hostels.

- For clinical care and other services each department/unit/facility to prepare **duty roster** as three groups so that only one group will be in front line. The remaining group can come in turn.
- Identifying **locations and listing out capacity** for clinical care including levels of care, escalation plans - Core group 1
- Preparing **duty roster for doctors with two arms** – Regular and Covid. Take in to consideration escalation plan - Dr. Radha T.R

Duty rosters will be prepared by

- HODs -For Cardiology, CVTS, Cancer, O & G, Psychiatry, Radiology
- HODs -For Technicians
- Store Superintendent-For pharmacists
- LS-For Superintendent Office

Grievance Committee

Dr. Sajith Kumar /Dr. Sobha Bhatt/Dr. Ranjan will look into all staff grievances.

Signage, Traffic Control, Parking and Ambulance Disinfection Area

Sergeant and House keeping

INFRASTRUCTURE DETAILS INCLUDING EQUIPMENTS/HR/FUNCTIONS

1.CONTROL ROOM

Situated in CCM Hall, Administrative Block.

Landline No: 0481-2592266

Email ID: covidcontrolroomgmck@gmail.com

Internet, Computer with Printer, TV, Telephone connection

Time: 24 hours

HR pattern: Headed by Principal. Twelve-member team working in shifts.

Duty pattern in every shift:

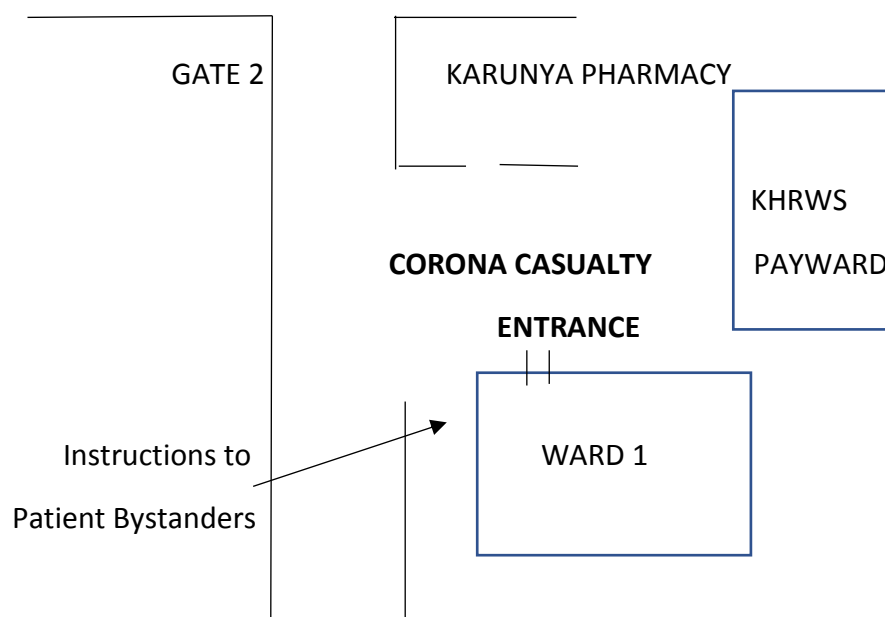
Senior Faculty-HOD/Senior Associate Professor in Charge	1
Middle Level Faculty-Coordinator	1
SR/JR/Intern	6 to 8
Nursing Superintendent/Head Nurse	1
PRO	1
Data Entry	1
Clerical Staff	1

2.CORONA CASUALTY

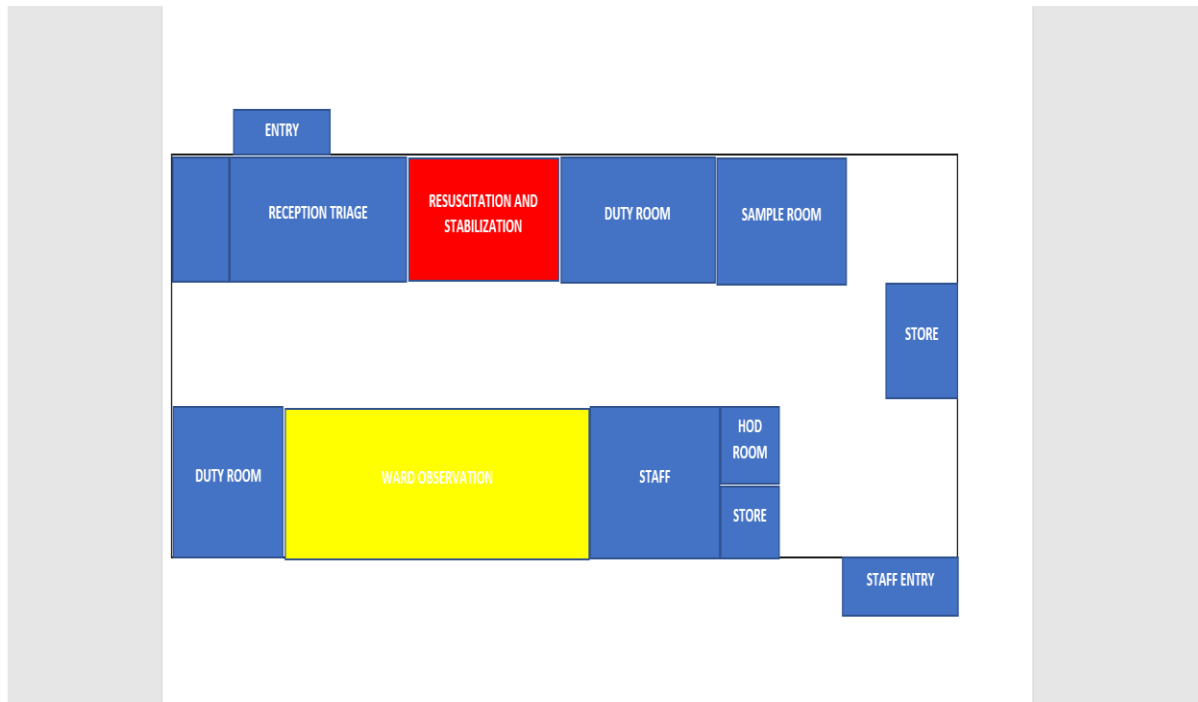
Location: Pulmonary Medicine (Ward-1)

Entrance → From traffic round → Gate Number 2 → Parking area
by the side of KHRWS pay ward → Ward-1

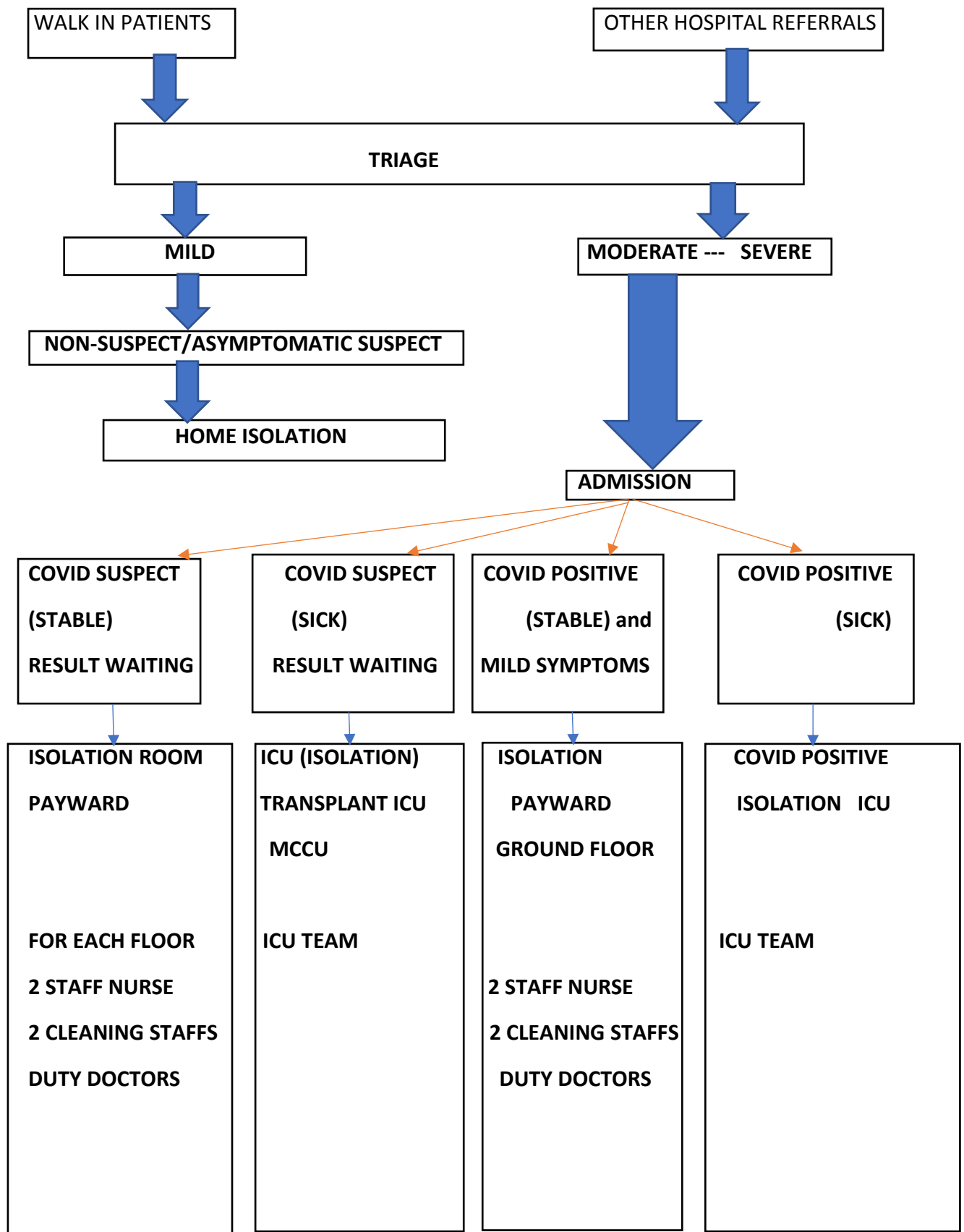
Sketch- Corona Casualty



Corona Casualty-Reception, Observation, Resuscitation care, Staff Room



COVID19 TRIAGE PLAN



HR

Reception Triage

Overall responsibility -Infectious Disease Department and Nursing Superintendent

Security	2
Staff Nurse	2
JR+Intern	2
Shifting Staff	1

Observation Room

Staff Nurse	2
Cleaning/Shifting	1

CPR Room

Anesthetist/MO	1
Technician	1
Staff Nurse	1
JR/SR	1

Sample Collection

JR/SR	1
Staff Nurse	1
Lab	1

Numbers will be increased in escalation phase. Duty list of those staff members should be prepared and made available to the control room at least 2 days in advance. Duty schedule for escalation phase should also be prepared.

Intubation protocol for Covid patients (Annexure 8)

Person responsible

- Doctors-corresponding HODs; Coordination: Senior faculty in charge of control room
- Nurses-Nursing Officer
- Cleaning, Shifting Staff-Nursing Superintendent
- Lab Technicians-HOD Microbiology
- Radiographer-HOD Radiology
- ECG Technician-HOD Cardiology

TRANSPORTATION

Transportation from Covid casualty can be to:

- 1) Isolation Rooms-KHRWS Pay wards
- 2) Isolation Wards-Ward 9 and 10
- 3) Isolation ICUs-Transplant ICU, MCCU, SCCU

All these transportations should be through *red corridor*.

Control Room should be informed and will be coordinating transportation.

Sergeant is in charge of keeping the red corridor ready.

Housekeeping/infection control is in charge of disinfecting the route, trolley etc after shift.

- 4) Transportation for home quarantine and after discharge - with the help of district administration

INPATIENT ADMISSIONS

STABLE:

PHASE I:(KHRWS Pay Ward-80 Rooms)

- COVID SUSPECT--- 1st floor room 200-217 (will go up as number increases)
- COVID POSITIVE---Ground floor especially with O2 requirement (if ground fills – 1st— then 2nd –3rd floor will be recruited in that order. As the lower floors are recruited for positive patients, upper floors will be given for suspect cases).

Person Responsible:

Admission decision-MO in charge of COVID casualty

MO to decide and inform control room what level of care the patient gets.

Room Allocation-Control Room/Head Nurse

PHASE II:(110 beds)

Phase II gets activated, once 50% of rooms occupied –

- Keep ward 9 & 10 free
- Ward 10 – COVID suspects (male +female)
- Ward 9 -COVID positive (male +female)

Person responsible to activate phase II: Core group

To implement: Control Room

PHASE III:(300 beds)

- Once 50% of rooms occupied
- Evacuate ward 7— then ward 6—ward 3---ward 2 –ward 15—ward 12 in that order

Person responsible: Core group

To implement: Control Room

UNSTABLE:

PHASE I:

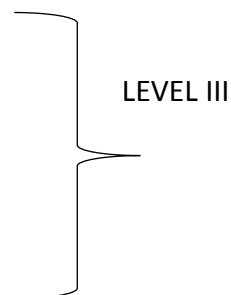
To ICU -Total beds available: 30 beds

Transplant ICU—4 beds.

Isolation ICU near MCCU –2 beds

Covid suspect – MCCU } 24 beds

Covid positive – SCCU }



PHASE II: Bed strength – 27 beds

- Ortho ICU (4 ventilators from surgery ICU can be shifted)-4 Beds
- Covid suspect/positive depend on numbers (LEVEL II)
- Neurosurgery —Neurosurgery ICU (LEVEL III) -8 Beds,
- Neurosurgery Ward (LEVEL II)-15 Beds,
- Neurosurgery ICU can be decompressed to Trauma ICU and Surgery ICU.

PHASE III :(33 beds + 10)

- Surgery ICU-18 Beds with 18 ventilators
- Trauma ICU-15 Beds with 6 ventilators.10 OT rooms can be converted to ICU and ventilators may be shifted there.

STOCK AND WASTE MANAGEMENT

1)STOCK

Coordinated through the Central Store. Supply from KMSCL, District Administration, donations and local purchase. The group working on stock and feedback chain to give report to Control Room.

Supervision of stock situation and further action done by Control Room.

2)WASTE MANAGEMENT

Segregation of waste and its disposal as per government guidelines with the help of IMAGE through designated path.

STAFF ACCOMODATION:

- LADIES:**

<i>Location</i>	<i>No of Persons who can be accommodated</i>
MBBS Ladies Hostel	75(can be escalated to 100)
New Ladies Hostel	50
Nursing Hostel	60
Dental Ladies Hostel	50
TOTAL	235(+25-if escalated)

- GENTS:**

Men's Hostel	100
Resident's quarters	100
Bystander dormitory gynaec block	30

- If needed, the Nursing Student's Hostel and Dental College Student's Hostel and MG University hostel facilities can also be utilized.*

STAFF TRANSPORT:

KSRTC may be instructed statewide in this regard.

We have arranged different buses to essential routes and the contact numbers of the concerned drivers have been collected and will be given to the needy when required.

- **Dental College Bus:**
MCH/ NENDOOR / KALLARA / VADAYAR / THALAYOLAPARAMBU / KADUTHURUTHY /
KURUPUMTHARA / KANAKARY / PATTITHANAM / ETTUMANOOR / MANNANAM / MCH

- **Nursing College Bus:**
MCH / PATTITHANAM / KURAVILANGADU / MARANGATTUPALLY /
PALA KOTTARAMATTAM / PALA KSRTC / MUTHOLI / CHERPUNGAL / KIDANGOOR /
ETTUMANOOR / ATHIRAMPUZHA / AMALAGIRI / MCH

- **SME Bus 1:**
MCH / KUDAYAMPADY / CHENGALAM / KUMARAKOM / KAIPUZHA / BUND ROAD/
IDAYAZHAM / KALLARA / NEENDOOR / MANNANAM / MCH

- **College Buses (2 Buses):**
MCH / THIRUVANJOOR / MANARKADU / PAMBADI / KARUKACHAL / PUTHUPALLY /
KANJIKUZHI / KOTTAYAM / CHAALUKUNNU / MCH

- **SME Bus 2:**
MCH/SANKRANTHI/KOTTAYAM/CHINGAVANAM/KURICHI/CHANGANASSERY

- **Superintendent Office Ambulance:**
MCH / THONNAMKUZHI / VILLOONI / MATHA KAVALA / PANACHIRAKUZHI /
KARIPUTHATTU / KARIPPA / KOLETTAMBALAM / PANAMBALAM

We have hired the Nursing College, Dental College and MG University buses for transportation.

Escalation Plan

- WARD 1 – Ready
- Pay Ward – Ready
- Isolation ICU – Ready
- MCCU/SCCU – Rearranging patients – Control room in co-ordination with Neurosurgery HOD/General Surgery HOD/General Medicine HOD
- Ward 9 & 10 – Rearranging patients – By Control room

Patient shifting	Nursing Superintendent on call
Supplying manpower	Kudumbashree & House keeping
Preparing the ward	Ward in Charge, Head Nurse
Supplying Manpower	Kudumbashree & House keeping
Security	

- Ortho ICU – Keep ready now
- Neurosurgery ICU – Rearranging patients – Control Room with Neurosurgery HOD / Nodal Officer
- Medical ICU – Rearranging patients – By Control room – MICU will be shifted upstairs to trauma ICU
- Further escalation ICU - CVTS Floor – By Control Room with CVTS HOD

HUMAN RESOURCE ALLOCATION PLAN IN COVID

For stable patients:

ISOLATION ROOMS (Total 4 floors):

A) Nursing Staff

- Each floor: 2 staff nurse/ shift with 3 shifts → 6 staff nurse/day
- Minimum (2 floors): 4 staff nurse/shift → 12 staff nurse/day
- Maximum (4 floor): 8 staff nurse/shift → 24 staff nurse/day

B) Cleaning Staff:

- Each floor: 2 cleaning staff/shift with 3 shifts → 6 cleaning staff/day
- Minimum (2 floors): 4 cleaning staff/shift → 12 cleaning staff/day
- Maximum (4 floors): 8 cleaning staff/shift → 24 cleaning staff/day
-

1. WARD 9(CORONA POSITIVE PATIENTS):

A) Nursing Staff: 4 staff nurse/shift with 6 shifts → 24 staff nurse/day

B) Cleaning staff: 4 cleaning staff/shift with 6 shifts → 24 cleaning staff/day

2. WARD 10(CORONA SUSPECT PATIENTS):

A) Nursing staff: 4 staff nurse/shift with 6 shifts → 24 staff nurse/day

B) Cleaning staff:4 cleaning staff/shifts with 6 shifts → 24 cleaning staff/day

3. WARD 7:

A) Nursing staff:4 staff nurse/shift with 6 shifts → 24 staff nurse/day

B) Cleaning staff: 4 cleaning staff/day with 6 shifts → 24 cleaning staff/day

4. WARD 6:

A) Nursing staff:4 staff nurse/shift with 6 shifts → 24 staff nurse/day

B) Cleaning staff:4 cleaning staff/shift with 6 shifts → 24 cleaning staff/day

5. WARD 3:

A) Nursing staff:4 staff nurse/shift with 6 shifts → 24 staff nurse/ day

B) Cleaning staff:4 cleaning staff/shift with 6 shifts → 24 cleaning staff/day

6. WARD 2:

A) Nursing staff: 4 staff nurse/shift with 6 shifts → 24 staff nurse/ day

B) Cleaning staff: 4 cleaning staff/shift with 6 shifts —————> 24 cleaning staff/day

7. WARD 15:

A) Nursing staff: 4 staff nurse/shift with 6 shifts —————> 24 staff nurse/day

B) Cleaning staff: 4 cleaning staff/shift with 6 shifts —————> 24 cleaning staff/day

8. WARD 12:

A) Nursing staff: 4 staff nurse/shift with 6 shifts —————> 24 staff nurse/day

B) Cleaning staff: 4 cleaning staff/shift with 6 shifts —————> 24 cleaning staff/day

FOR UNSTABLE PATIENTS:

1. TRANSPLANT ICU (4 beds):

A) Nursing staff: 1 staff nurse/ 2 beds with 6 shifts —————> 12 staff nurse/day

B) Cleaning staff: 1 cleaning staff/ICU with 6 shifts —————> 6 cleaning staff/day

2. ISOLATION ICU NEAR MCCU (2 beds):

A) Nursing staff: 1 staff nurse/ 2 beds with 6 shifts —————> 6 staff nurse/day

B) Cleaning staff: 1 cleaning staff/ICU with 6 shifts —————> 6 cleaning staff/day

3. MCCU + SCCU (24 beds):

A) Nursing staff: 1 staff nurse/ 2 beds with 6 shifts —————> 72 staff nurse/day

B) Cleaning staff: 2 cleaning staff/ICU with 6 shifts —————> 24 cleaning staff/day

4. ORTHO ICU (4 beds):

A) Nursing staff: 1 staff nurse/ 2 beds with 6 shifts —————> 12 staff nurse/day

B) Cleaning staff: 1 cleaning staff/ICU with 6 shifts —————> 6 cleaning staff/day

5. NEUROSURGERY ICU (8 beds):

- A) Nursing staff: 1 staff nurse/ 2 beds with 6 shifts —————> 24 staff nurse/day
B) Cleaning staff: 1 cleaning staff/ICU with 6 shifts —————> 6 cleaning staff/day

6. NEUROSURGERY WARD (15 beds):

- A) Nursing staff: 1 staff nurse/ 2 beds with 6 shifts —————> 48 staff nurse/day
B) Cleaning staff: 2 cleaning staff/ICU with 6 shifts —————> 24 cleaning staff/day

7. SURGERY ICU (18 beds):

- A) Nursing staff: 1 staff nurse/ 2 beds with 6 shifts —————> 54 staff nurse/day
B) Cleaning staff: 2 cleaning staff/ICU with 6 shifts —————> 24 cleaning staff/day

8. TRAUMA ICU (15 beds):

- A) Nursing staff: 1 staff nurse/ 2 beds with 6 shifts —————> 48 staff nurse/day
B) Cleaning staff: 2 cleaning staff/ICU with 6 shifts —————> 24 cleaning staff/day

C) Shifting Staff

- Pool of shifting staff to be posted for multiple wards and ICUs.
- They are also to be used for supply of food, drugs and other supplies.

D) Lift Operators

- To be available 24 hours.

E) Lift technicians

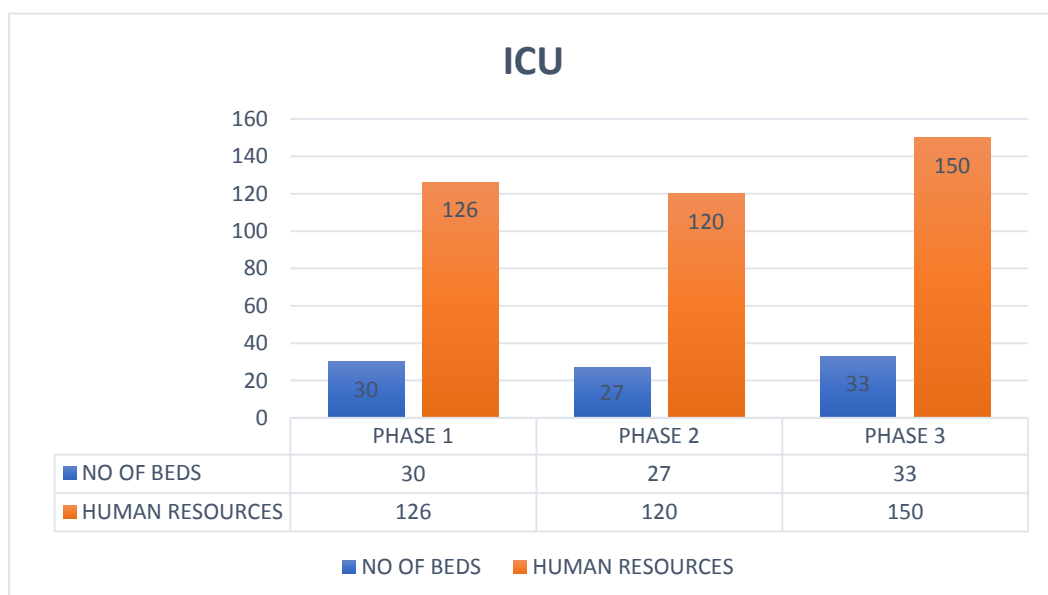
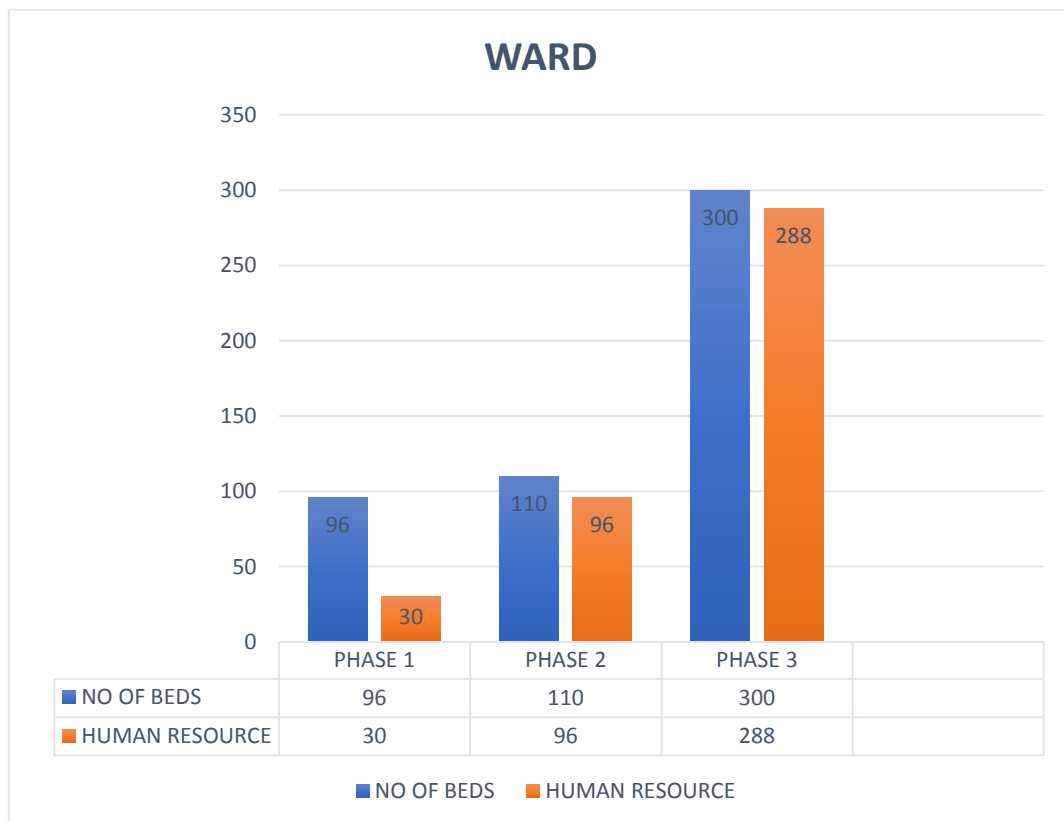
- To be on call for 24 hours as many patient care areas depend on lift for transportation.

F) Supervisory staff

- To coordinate work at different wards, triage areas and ICUs.

F) Doctors

- Separate set of doctors to be present in the triage area, intubation area, wards and ICUs. Another set of doctors to be on call for escalation plan if an acute increase in patient load occurs.



TREATMENT GROUP

COVID TEAM:

A Covid Team is constituted with Principal as the head and Dr. Sajith Kumar, HOD, IDU as the nodal officer. It meets at regular intervals at least once a week, reviews the present situation and make appropriate modifications in SOP.

MEDICAL BOARD:

Constituted with HOD Medicine, HOD Pulmonary Medicine, HOD IDU, PEID Cell Coordinator and Critical Care Specialist as members. It meets daily and makes patient's treatment related decisions.

TREATMENT CORE TEAM:

Faculty of Corona Clinic, Duty Medical Officer of General Medicine, ICUs and expert from IDU forms the Treatment Core Team and are present in the hospital round the clock.

PEID Cell

Contact tracing, health care worker surveillance, collection of daily data and reporting to district and state authorities is primarily carried out by PEID cell. Dr. Anitha Bhaskar from SPM department is the coordinator for the same.

ANNEXURE -1
SOP FOR COVID -19 POSITIVE / COVID -19 SUSPECTED PATIENTS WITH ACS
Dept. of Cardiology
Government Medical College, Kottayam

1. All patients COVID-19 suspects/ cases, should initially be seen and triaged in the already designated area for such patients in the casualty/isolation unit. After initial evaluation, ECG should be taken and send to the Duty MO Cardiology, preferably by WhatsApp and the case details discussed over phone.
2. Further management of such patients will be decided by the Duty MO Cardiology.
3. If the diagnosis is ACS requiring reperfusion, such patients will be transferred to Cardiology, with adequate precautions.
4. No patient shall be transferred to Cardiology without concurrence from the Duty MO, Cardiology.
5. Patient should be transported through ground floor via the lift, and not through main entrance.
6. The patient will be taken to the area designated for COVID-19 patients.
7. Further management strategy of ACS will be according to the existing departmental protocol.
8. Cath ICU will be designated for management of all COVID-19 positive cases and named as COVID-19 positive CCU.
9. The room in front of the Cath ICU (Nurses Room) is designated as changing room.
10. Donning will be in the present Cath lab technologist room.
11. After the duty in the COVID positive CCU, the staff will be Doffing in the designated area inside the CCU adjacent to the door.
12. For other staff (other than in the COVID CCU), including those involved in the Primary PCI, Doffing will be in the room adjacent to the GE Cath lab console (Head Nurses Room).
13. The ICU adjacent to the Cath lab (presently for sheath removal) will be designated as CCU for COVID-19 suspected patients, and such patients will be managed there.
14. The new GE Cath lab will be used for emergency PCI of COVID-19 patients/suspects.
15. The connecting door between the GE Cath lab and the old Philips Cath lab will be closed and sealed.
16. As soon as the emergency care is over, and patient is hemodynamically stable, they will be transferred back to the designated area in the MCCU/ isolation rooms. This is to avoid overcrowding, spread of the disease and for proper care of the non-COVID patients.
17. The old Philips lab will be used for non-COVID patients.
18. Non COVID patients will be treated in the presently designated CCUs & wards.
19. Full PPE should be used by all staff taking care of the COVID 19 patients and the head nurses may ensure adequate supply of PPEs.
20. Necessary boards & displays should be there for the public in front of the area.
21. No bystander is permitted with the patient.

22. Standard disinfection protocols for the Cath lab, CCUs, donning and doffing rooms, corridors and all equipments should be mandatory.

23. Separate ECG machine, defibrillator, ventilators, echo machine and other equipments should be there for the CCUs and Cath lab.

24. All precautions to prevent spread of infection to be taken by the staff and supervised by the infection control unit.

25. Entry and exit to the area to be minimized.

HOD, Dept. of Cardiology

24.3.2020

ANNEXURE-2
STANDARD OPERATING PROCEDURE FOR INFECTION CONTROL AND PREVENTION AT
COVID 19 CARDIAC SURGERY PATIENT CARE AND ISOLATION
Government Medical College, Kottayam

Back ground

In view of recent pandemic of COVID 19 this standard operating procedure is formulated and followed at Medical College Hospital, Kottayam.

Description of Corona patient who needs cardiac surgery

Corona cardiac surgery pre op isolation room is the treatment room of thoracic ward in first floor with separate lift. Corona OT is thoracic OT and Coronary ICU is 4 bedded ICU near thoracic OT in first floor. For locating the Corona cardiac OT and ICU, proper sign boards are placed in different areas of the campus.

Patient flow

Corona positive cardiac emergencies	Patient from Cardiology- Duty M.O see, assess and prepare the patient for surgery	Once ready ,shift to OT through red corridor with full PPE for medical staff	After surgery, shift to ICU II through red corridor. ICU staff entry will be through different entry. All staff in PPE	Patient kept in ICU II till discharge
Regular cardiac emergency surgeries	Referral/operating list, cardiology/casualty	Reserve the patient in Pre op ward	Shifted to OT after preparation	ICU I ↓ Step down/Postop ward
Corona positive. Infected cases/Thoracic Surgery/Cancer cases/Limb ischemia	Casualty/other wards/Referral	Duty M.O assess and prepare the patient	Shift to thoracic ICU if needed or directly to thoracic OT via red corridor	Post op in ICU attached to thoracic OT
Regular thoracic emergencies/cancer patient	Casualty/Other ward/Referral	Reserve the patient in Thoracic ward	After surgery patient shifted to Wd CT 1 ICU	CT 1 ward & discharge

ANNEXURE-3

Covid care protocol

Department of Obstetrics and Gynaecology,

Government Medical College, Kottayam

Management of a Covid suspect/ positive cases is classified into three based on different clinical scenarios:

I) Covid suspect /patient in isolation coming to OP

- 1) Whether she comes to OP/casualty, provide surgical mask if not already wearing and shift to isolation room in ground floor.
- 2) Case examined by duty PG after wearing appropriate PPE.
- 3) Take h/o obstetric complaints and respiratory symptoms. Examine and use BP apparatus and stethoscope kept there.
- 4) Admission if any need for intervention only
- 5) Shift to 4th floor via lift kept for Covid cases.
- 6) If no obstetric intervention but has respiratory symptoms, send to Covid treatment area.
- 7) Don't write anything from isolation room. Write after examination from casualty.

II) Covid suspects coming in labour

- 1) Security staff should get reference letter and show casualty JR.

If suspected case- Shift from ground floor via lift to 4th floor G10. Only one bystander with patient is allowed and should have surgical mask.

- 2) Case examined by Corona duty PG after wearing appropriate PPE.
- 3) If no need of intervention or observation, inform duty MO and can be send back. If respiratory symptoms, send to Covid treatment zone.
- 4) If in labour, admit. Alert NICU. Call G10 duty house surgeon.
- 5) First stage monitored in G10 ward by JR after wearing appropriate PPE.
- 6) Team inside labour room will be JR, staff nurse, nursing assistant. House surgeon will be immediately outside labour room for writing case sheets and communication.
- 6) Team and NICU staff will put on PPE kit well in advance and shift to second stage which is the cubicle inside G10.

Total 5 PPE kits will be used in normal delivery.

Use allocated donning and doffing areas.

7) After delivery, team conducting the delivery will remove the PPE and can go and change / take bath from Doctor sick room.

8) Patient is shifted to G10 and after monitoring for 2 hrs, shift her to pay ward room.

9) House surgeon will monitor postpartum after wearing appropriate PPE.

III) Covid suspects/ patient in isolation requiring CS

1) Shift patient to G10 and prepare for CS from G10.

2) Inform theatre and duty anaesthetist. Inform neonatology.

3) Shift through ramp from 4th floor to 3rd floor and entry into OT through Minor OT side door into 4th OT.

4) Team: Duty MO, Corona duty PG, Anaesthetist:2, Staff nurse:1, Attender staff:2, Paediatrics JR: 1. Total 8 donning from OT.

5) House surgeon wait outside wearing appropriate PPE.

6) After CS, shift to G10 and monitoring for 4 hrs by house surgeon after wearing appropriate PPE.

7)After 4 hrs, shift to ward.

Care in isolation wards

1) Routine postnatal/post-op care given. Can breast feed. Patient and bystander should wear mask.

2) Only one doctor need to daily examine the patient after wearing appropriate PPE.

Ask about respiratory symptoms specifically.

Don't write anything from the room. Case sheet will be in pay ward duty room.

3) Uncomplicated postnatals discharged after 24hrs.

4) Post- op discharge on POD 4.

5) If any respiratory symptoms/fever- IDU consultation.

6) Blood investigations should be sent in sealed cover by staff. Blood transfusion, if needed should be collected from blood bank by staff.

7) Only one female bystander stays with patient and both should be confined to the room.

8) Check with head nurse in charge regarding food provisions and transport after discharge.

In case of Covid positive with any of the clinical scenario follow same protocols except that all personnel involved should wear PPE kit throughout.

ANNEXURE 4

Institute of Child Health. Kottayam.COVID-19 PROTOCOL

Suspect Case:

A child with acute respiratory illness {fever and at least one sign/symptom of respiratory disease (e.g., cough, shortness of breath or diarrhoea), AND a history of travel to or residence in a country/area or territory reporting local

OR

A child with severe acute respiratory infection {fever and at least one sign/symptom of respiratory disease (e.g., cough, shortness breath)} AND requiring hospitalization AND with no other etiology that fully explains the clinic presentation;

OR

A case for whom COVID 19 testing is inconclusive

WHERE TO
SCREEN*

A pediatric patient who is a suspected case of COVID 19 is seen in the FEVER CLINIC MCH KOTTAYAM, (1st floor, new casualty complex). Detailed history and examination, and clinical categorisation is done* Admission in isolation ward or ICU/MCH.

* THIS MIGHT CHANGE IF
NUMBER INCREASES

Laboratory Confirmed case:

A child with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms

Scanned with

A CONTACT is a child that is involved in any of the following:

Staying in the same close environment of a COVID-19 patient (including workplace, classroom, household, gatherings)

Travelling together in close proximity (within 1 m) with a symptomatic person who later tested positive for COVID-19. Co-passengers in an airplane /vehicle seated in the same row, 3 rows in front and behind of a confirmed covid19 case

HIGH RISK CONTACT

Contact with confirmed case of COVID 19

Travelers who visited a hospital where covid patients are treated

Travel to a province where where LOCAL TRANSMISSION is being reported as per who daily situation report

Touched body fluids of patients

Had direct contact with body including physical examination with out PPE

Touched or cleaned linens ,clothes,dishes of patient without PPE

close contact within 3 feet (1 metre)of confirmed case

co passengers in aeroplane or vehicle seated in the same row or 3 rows infront or behind of a confirmed COVID case

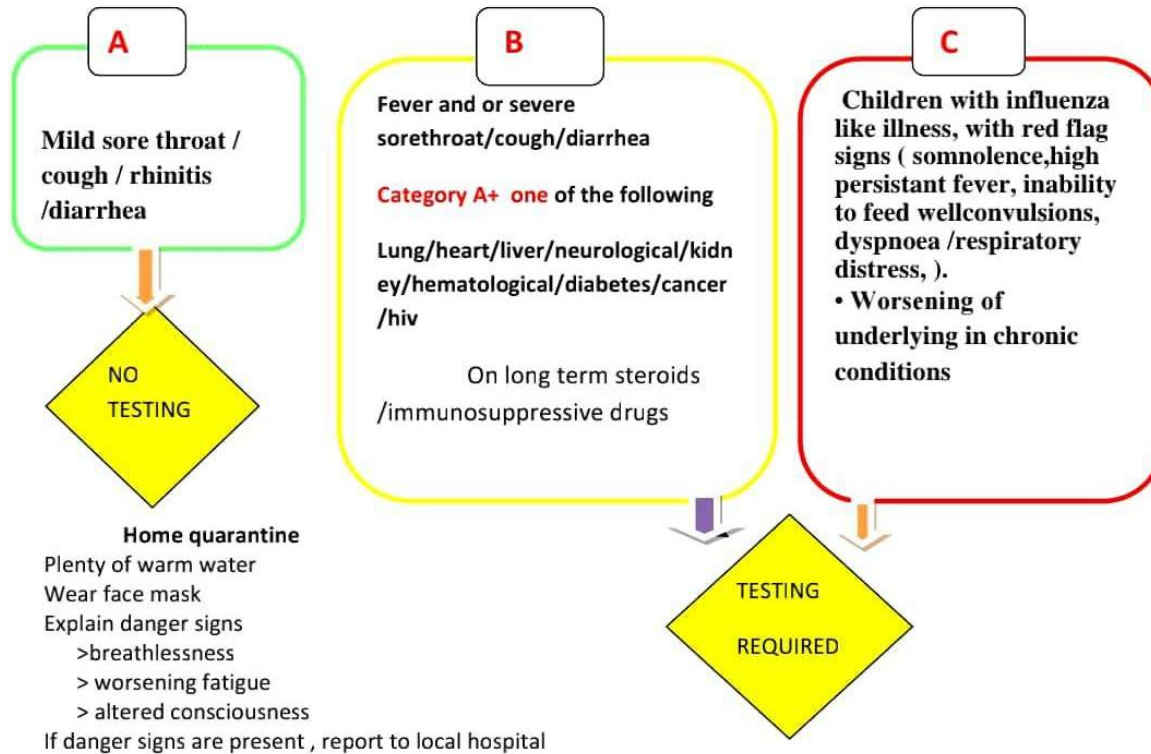
LOW RISK CONTACT

Shared same place(same class room,same room for work or similar activity (and not having high risk exposure to suspected or confirmed case

Travel in the same enviornment(bus/train) not having high risk exposure as sited

Any traveler from abroad not satisfying high risk

Categorisation



CATEGORY-A - HOME ISOLATION

CATEGORY- B – CORONA ISOLATION TILL RESULT OR STICRT HOME ISOLATION.IF POSITIVE CONTINUE IN ISOLATION. IF NEGATIVE HOME ISOLATION FOR 28 DAYS IN HIGH RISK AND 14 DAYS IN LOW RISK

CLINICAL SYNDROMES

MILD ILLNESS

Patients with uncomplicated upper respiratory tract viral infection, may have non-specific symptoms such as fever, fatigue, cough (with or without sputum production), anorexia, malaise, muscle pain, sore throat, dyspnea, nasal congestion, or headache

PNEUMONIA

Child with non-severe pneumonia who has cough or difficulty breathing + fast breathing (in breaths/min):
 < 2 months: ≥ 60 ; 2–11 months: ≥ 50 ; 1–5 years: ≥ 40 , and no signs of severe pneumonia

SEVERE PNEUMONIA

Child with cough or difficulty in breathing, plus at least one of the following: central cyanosis or $\text{SpO}_2 < 90\%$; severe respiratory distress (e.g. grunting, very severe chest indrawing); signs of pneumonia with a general danger sign: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions (15). Other signs of pneumonia may be present: chest indrawing, fast breathing (in breaths/min): < 2 months: ≥ 60 ; 2–11 months: ≥ 50 ; 1–5 years: ≥ 40 (16).

ARDS

Oxygenation impairment in children: note $\text{OI} = \text{Oxygenation Index}$ and $\text{OSI} = \text{Oxygenation Index using SpO}_2$. Use PaO_2 -based metric when available. If PaO_2 not available, wean FiO_2 to maintain $\text{SpO}_2 \leq 97\%$ to calculate OSI or $\text{SpO}_2/\text{FiO}_2$ ratio:

▣ Bilevel (NIV or CPAP) ≥ 5 cmH_2O via full face mask:

$\text{PaO}_2/\text{FiO}_2 \leq 300$ mmHg or $\text{SpO}_2/\text{FiO}_2 \leq 264$

▣ Mild ARDS (invasively ventilated): $4 \leq \text{OI} < 8$ or $5 \leq \text{OSI} < 7.5$

▣ Moderate ARDS (invasively ventilated): $8 \leq \text{OI} < 16$ or $7.5 \leq \text{OSI} < 12.3$

▣ Severe ARDS (invasively ventilated): $\text{OI} \geq 16$ or $\text{OSI} \geq 12.3$

SEPSIS

Children: suspected or proven infection and ≥ 2 aged based systemic inflammatory response syndrome criteria, of which one must be abnormal temperature or white blood cell count

SEPTIC SHOCK

Children: any hypotension ($\text{SBP} < 5\text{th centile}$ or > 2 SD below normal for age) or two or three of the following: altered mental state; tachycardia or bradycardia ($\text{HR} < 90$ bpm or > 160 bpm in infants and $\text{HR} < 70$ bpm or > 150 bpm in children); prolonged capillary refill (> 2 sec) or feeble pulse; tachypnea; mottled or cool skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia

SIRS

Two of 4 criteria, 1 of which must be abnormal temperature or abnormal leukocyte count:

1. Core temperature $>38.5^{\circ}\text{C}$ (101.3°F) or $<36^{\circ}\text{C}$ (96.8°F) (rectal, bladder, oral, or central catheter)

2. Tachycardia: Mean heart rate >2 SD above normal for age in absence of external stimuli, chronic drugs or painful stimuli

or

Unexplained persistent elevation over 0.5-4 hr

or

In children <1 yr old, persistent bradycardia over 0.5 hr (mean heart rate <10 th percentile for age in absence of vagal stimuli, β -blocker drugs, or congenital heart disease)

3. Respiratory rate >2 SD above normal for age or acute need for mechanical ventilation not related to neuromuscular disease or general anesthesia

4. Leukocyte count elevated or depressed for age (not secondary to chemotherapy) or $>10\%$ immature neutrophil

Child presenting with fever + cough
/SORETHROAT/ DIARRHOEA _

NO RED FLAG/ NORMAL
VITALS AND SENSORIUM

MILD ILLNESS

tachypnoea (>60 upto 2 months*, >50 , 2-12 months, >40 , 1-5 yrs, >30 adolescent)
spo2 $< 94\%$ room air
drowsy
hypotension for age (<70 infant, $70 + \text{age in yrs} \times 2$, 2-10 yrs, map 55, newborn) 58, (2 yrs) 65 (7 yrs)

SEVERE PNEUMONIA, ARDS, SEPSIS, SEPTIC SHOCK

TREAT ACCORDINGLY IN CRITICAL CARE ICU

TESTING GUIDELINES

CATEGORY A : NO TESTING NEEDED

CATEGORY B AND CAT C: TESTING REQUIRED

NB: In patients with viral pneumonia without an etiology, COVID-19 testing may be considered even if the patient is not from a country or area with local transmission of COVID-19. Testing should be restricted to the patient with bilateral lung infiltrates, lymphocytopenia with decreased or normal total count. Decision on testing to be taken by Institutional or District medical board.

LABORATORY INVESTIGATIONS FOR PROVEN COVID 19 PATIENTS

<i>At admission</i>	CBC,RFT,LFT,CRP,RBS,ECG
<i>If clinically indicated</i>	Portable CXR, HIV,HBsAg, HCV,D-Dimer, Ferritin, LDH,CPK,Procalcitonin, Blood culture
<i>To repeat every 3 days if clinically</i>	CBC, Creatinine, AST/ALT,CRP,LDH,CPK,Ferritin, HRCT
<i>For immunocompromised patients : eg Transplant recipients,HIV</i>	Tests to rule out opportunistic infections like Mycobacterium tuberculosis, Pneumocystis jiroveci etc

ANTICIPATED LAB INVESTIGATION RESULTS

- Leucopenia and Lymphopenia . Leucocytosis in < 25%
- Neutrophil/lymphocyte ratio if > 3.1→predicts ARDS progression
- Platelet count can decrease
- SGOT/PT increase
- CRP is elevated in 60-86%
- Ferritin to rule out HLH(Hemophagocytic Lymphohistiocytosis)
- Chest xray –interstitial/Ground glass/Peripheral consolidation

TREATMENT

Supportive Treatment

- 1) Fever: Paracetamol 15mg/kg/dose SOS if temp >100.4F max upto Q6H
- 2) Oral hydration
- 3) MDI Salbutamol/ levosalbutamol preferred over nebulization (risk of aerosol generation). Avoid systemic/inhaled steroids.

Indications for steroids: Refractory shock, Macrophage activation syndrome, Cytokine release syndrome (methylprednisolone 1-2mg/kg/day or hydrocortisone 50-100mg/m2/day)

- 4) Oseltamivir for all symptomatic patients . - For 5 days

Dose by weight

Weight <15kg	30mg BD
15-23Kg	45mg BD
24-40 Kg	60mg BD
>40kg	75mg BD
For infants	
< 3 months	12mg BD
3-5months	20 mg BD
6-11months	25mg BD

- 5) Antibiotic selection in case of secondary bacterial pneumonia according to WHO ALRI control programme.

Severe Pneumonia

- Supplemental oxygen if **Spo2 < 90%**
- In children with respiratory distress or shock target Spo2 >94%.
- NIV may be offered only in selected patients with hypoxemic respiratory failure.
Use of conventional ventilator for NIV with non vented oro nasal masks preferable
- In patients with hemodynamic instability, multiorgan failure or altered sensorium invasive ventilation is preferred. **(Perform intubation only after putting on complete PPE).**

Treatment Strategies

CATEGORY A

Symptomatic Treatment

CATEGORY B

Tab Hydroxy chloroquine Pediatric dose (<18 years) : 6.5mg /kg /dose (Max 400mg) PO BD day 1 followed by 3.25mg per kg PO BD (max 200mg/dose) for 4 days.

OR

Tab Chloroquine Sulphate (hydroxyl chloroquine (HCQ) is preferred over chloroquine)
dose: 10 mg /kg chloroquine sulphate base stat followed by 5mg per kg 12 hours later and then 5 mg / kg/ dose BD for 4 more days.

plus

Tab Azithromycin It is to be given along with HCQ 10mg /kg day 1 (max 500mg) 5mg/kg days 2-5 (max.250mg)

plus

Cap Oseltamivir

CATEGORY C

Tab Hydroxy chloroquine Pediatric dose (<18 years) : 6.5mg /kg /dose (Max 400mg) PO BD day 1 followed by 3.25mg per kg PO BD (max 200mg/dose) for 4 days.

OR

Tab Chloroquine Sulphate (hydroxyl chloroquine (HCQ) is preferred over chloroquine)
dose: 10 mg /kg chloroquine sulphate base stat followed by 5mg per kg 12 hours later and then 5 mg / kg/ dose BD for 4 more days.

Plus

I/v Azithromycin It is to be given along with HCQ 10mg /kg day 1 (max 500mg) 5mg/kg days 2- 5 (max.250mg).

Plus

Cap Oseltamivir

Indications for lopinavir/ritonavir

- 1) Contraindication to HCQ/ chloroquine
- 2) Patient progresses to ARDS / MODS while on HCQ/chloroquine (in that case stop Azithromycin)

Lopinavir/ ritonavir may be considered in case to case basis after written consent and medical board concurrence.

Pediatric Dose Lopinavir /ritonavir

14 days to 6 months : 16mg/kg/dose (based on lopinavir component) PO BID

< 15kg : 12 mg/kg/dose PO (based on lopinavir component) BID

15-25 kg: 200 mg-50 mg PO BID

26-35 kg: 300 mg-75 mg PO BID

>35 kg: 400 mg-100 mg PO BID

Duration of treatment : 14 days or 7 days after becoming asymptomatic

Adverse Effects

HCQ: Retinopathy , rash, nausea, glucose fluctuations, and diarrhea. GI symptoms can be mitigated by taking hydroxychloroquine with food.

Contraindications: QT prolongation > 500msec, porphyria, myasthenia gravis, retinal pathology, epilepsy . If baseline QT prolongation is present take frequent ECG.

Avoid taking hydroxyl chloroquine with antacids. Separate administration by at least 4 hours.

Lopinavir/ritonavir : Hepatotoxicity, pancreatitis, diabetes, QT prolongation, lipid elevations.

NORMAL VITAL SIGNS BY AGE :

AGE	HEART RATE (per minute)	BLOOD PRESSURE (mm hg)	RESPIRATORY RATE (per minute)
0-3 months	110-160	65-85 / 45-55	40 – 60
3-6 months	100-150	70-90 / 50-65	30 – 45
6-12 months	90-130	80-100 / 55-65	25 – 40
1-3 years	80-125	90-105 / 55- 70	20 – 30
3-6 years	70-115	95-110 / 60- 75	20 -25
6-12 years	60-100	100-120 / 60 -75	14 – 22
More than 12 years	60-100	100-120 / 70-80	12 - 18

ESTIMATED BLOOD PRESSURE BY AGE

Measurement	50 th percentile (mm hg)	5 th percentile (mm hg)	
Systolic BP	$90 + (2 \times \text{age})$	Neonate	60
		Infant	70
		2-10 years	$70 + (\text{age} \times 2)$
		More than 10 years	90
MAP (Mean Arterial Pressure)	$55 + (\text{age} \times 1.5)$	$40 + (\text{age} \times 1.5)$	

References :

- 1.Clinical management of Severe Acute Respiratory infection when Novel Coronavirus (2019- nCoV) infection is suspected : Interim guidance by WHO Jan 28, 2020.
- 2.COVID-19 INTERIM TREATMENT GUIDELINES FOR KERALA STATE dt 24/03/2020.
- 3.Guidelines on Clinical Management of COVID-19, Govt of India dt 17/03/2020.

(prepared by ICH MOs&Pgs on 28/03/2020) ,.Dr.S.Omana.HOD Paediatrics.

ANNEXURE-5
COVID 19 - Guidelines for Dialysis Unit Dept. of Nephrology,
Government medical College, Kottayam

Telephonic enquiry for all MHD Patients on day prior to dialysis

Enquire about

1. Any signs or symptoms of a respiratory infection, such as a fever, cough, shortness of breath or sore throat.
2. Contact with quarantine person.
3. History of International/interstate traveller contact with such patients Since last 28 days.

Patients with respiratory symptoms are advised to contact the department by phone (0481 2592255, 2592225) so that bed in the isolation HD Room can be arranged.

Procedure at arrival

☐ Patients reporting any suspicious symptoms or history of contacts are advised to go to Corona clinic.

☐ Patients with signs and symptoms of respiratory infection (e.g., fever, cough) coming to dialysis unit without prior notice should be sent to corona clinic. ☐

☐ Patients returning from corona clinic to be asked to wait in separate designated waiting areas☐

☐ All patients and caregivers in the designated waiting area should wear triple layer face mask and keep 1-meter distance in all direction. Information regarding hand hygiene, respiratory hygiene and respiratory etiquette should be provided through posters– the patient can be directly taken to the designated waiting area and patients have to wear medical mask.☐

Patient Instructions

☐ All patients should wash their hands before entering the unit or use hand sanitizers provided.☐

☐ Only one patient will be allowed to enter the unit at a time. No bystander will be allowed unless the patient is on wheelchair.☐

☐ Keep at least 5-minute interval between patient entry.☐

Patient with no infection / contact

1. Routine precautions at MHD dialysis unit II
2. Educate regarding hand hygiene and cough etiquette

Asymptomatic contacts – patients returning from corona clinic after undergoing treatment/ testing (swab) for suspicious/contact for COVID 19**1. Dialysis in isolated HD Room**

2. 6 feet isolation precautions during dialysis
3. General hand hygiene and to avoid touching the face

Symptomatic patients with a history of contact / undiagnosed respiratory infection as revealed through telephonic enquiry or noticed at arrival (after undergoing treatment/ testing (swab) for suspicious/contact for COVID 19).

1. To be dialyzed in the isolated haemodialysis room entry to which is through main gate in front of main medicine office, patient may use the lift there (without any other patients and wearing surgical mask) and will be taken to isolate dialysis unit through entrance on the veranda of ward 6.
2. To be dialyzed on a priority basis to minimize waiting time
3. If required to wait in the waiting area – to be given a mask and separated by at least 6 feet on all sides. If there is a delay in dialysis, patient can wait in their private vehicle.
4. If critically ill, the patient may be shifted to isolation dialysis room near MCCU
5. Dialysis in isolation room with full precautions
6. Should be tested for COVID-19 at the earliest.

Proven COVID 19 positive

1. Dialysis in an isolation room near MCCU WITH FULL PRECAUTIONS
2. Standard disinfection for machine and surface
3. Dedicated staff for COVID - 19 positive patients
4. Route of entry into hospital to be charted out
5. To use private transport / designated ambulance
6. Treatment as per current guidelines

Family and Caregivers

- ☒ To wait in the car if possible – shall be contacted by mobile if required
- ☒ To inform the dialysis unit if any symptoms
- ☒ Primary contacts/history of travel – not to accompany patients and adhere to home isolation for the designated time
- ☒ To be educated with hand hygiene and other general measures
- ☒ No bystanders will be allowed inside till further notice and unless there is an emergency

Health care workers

☒ Asymptomatic

1. To be screened for fever while entering the hospital facility
2. To minimize travel other than for work and report if any contact with the suspect or proven case
3. Wash hands at entry and frequently. Use masks at all times if available in adequate quantities.

☒ Symptomatic

1. To inform the dialysis unit and collect details about individuals, equipment, and locations the person came in contact with during the last shift
2. Ask to report to COVID TREATMENT ZONE to follow protocol.

PPE to be used during dialysis of contacts / undiagnosed respiratory symptoms / diagnosed COVID 19

Unsterile long-sleeved surgical gowns Gloves

Facemask

Eye protection - goggles

General measures

1. No-touch bins for disposing of napkins, masks, etc.
2. Disinfection of room and beds
3. Disinfection of haemodialysis machine – standard disinfection
4. Training of all health care workers on donning/doffing PPE, hand hygiene, respiratory hygiene
5. Staff members should have meals at different times
6. People entering the dialysis unit should use hand sanitizers kept at the entrance
7. Minimize entry into isolation rooms.

ANNEXURE-6

COVID-19 GUIDELINES IN ONCOLOGY DEPARTMENT

Government Medical College, Kottayam

The cancer care centre of Government Medical College, Kottayam is one of the most important cancer treatment centres of Central Kerala. The Oncology department of this centre, comprising of 2 units receives almost 300 patients who with their relatives make up about 1000 people coming to the outpatient division per day. In the background of the spreading Covid -19 pandemic, an emergency meeting was convened in the Cancer Centre and the following decisions has been made which is to be followed hereon till further notice.

Since most of the cancer patients undergo treatments like chemotherapy, radiation therapy and surgery, they are immunocompromised. This has called for the implementation of following restrictions:

- 1)All cancer treatments of critical manner will continue.
- 2)Adjuvant chemotherapy treatments are discontinued until March 31st .
- 3)Patients who are under palliative chemotherapy can avail it from nearby hospitals.
- 4)Treatment of those patients who have already been started on radiation will be continued. If situations where travel, accommodation becomes difficult (as in a lockdown), radiation therapy can be postponed.
- 5)For new patients, no radiation treatment will be started until March 31st .
- 6)In cases of emergency, the patient should be admitted to nearby government hospitals and should get CBC done. The results are acquired and treatment must be started only after consulting the doctor in the Oncology department. For this purpose, please contact the following numbers:

Dr. Preeya-9495625873

Dr. Binitha.T. Thomas-9447507803

} UNIT 1

Dr. Sureshkumar.K: 9895031215: Unit 2

For patients who are treated locally, advice will be available through phone/video

conferencing. This facility is available only till March 31st .

7) There will be no follow-up treatment until March 31st .

8) No certificates will be granted until March 31st .

INSTRUCTIONS FOR PATIENTS:

1) Compulsory social distancing should be maintained.

2) Those on cancer treatment should live in specially prepared rooms if possible.

3) Wash hands properly with soap and water after each activity. Do not touch eye, nose and mouth.

4) Maintain cleanliness in all aspects of daily life like the room where they live in, clothes and utensils which they use, those things which patients handle.

5) Drink lot of water.

6) If any symptoms of fever, cough., common cold, vomiting arise consult the nearby PHC or CHC and then get CBC done. For those patients who is been taking chemotherapy, get CBC done on the prescribed days. To get the result, contact the Oncology Department in the above numbers until March 31.

7) Use masks when travelling and burn it carefully.

8) Do not resort to self-treatment. Consult the nearby PHC if any need arises.

9) Palliative care patients can consult nearby Palliative Care Centres.

10) Covid -19 can be dangerous. Maybe more than cancer. Care for our society and ourselves.

ANNEXURE 7

GOVT.MEDICAL COLLEGE HOSPITAL, KOTTAYAM

STANDARD OPERATING PROCEDURE FOR INFECTION CONTROL AND PREVENTION AT COVID 19 OUT PATIENT CARE AND ISOLATION -EXISTING FACILITY

Back ground

In view of recent pandemic of COVID 19 this standard operating procedure is formulated and followed at Medical College Hospital Kottayam.

Description of corona outpatient and isolation facility

Corona OP is in the second floor of casualty with a separate entrance and a lift. For locating the corona clinic proper sign boards are placed in different areas of the campus. Twenty isolation rooms are arranged in KHRWS pay ward, ICU facility is arranged in MCCU/SCCU and transplant ICU (four individual rooms and other common beds). Rooms in 3rd floor of KHRWS pay ward are arranged for the bystanders of admitted cases.

Escalation will be done as per the need.

Rational use of PPE

The PPEs are to be used based on the risk profile of the health care worker.

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	Health Desk	Provide information to travellers	Low risk	Triple layer medical mask Gloves	Minimum distance of one meter needs to be maintained.
2	Immigration counters, customs and airport security	Provide services to the passengers	Low risk	Triple layer medical mask Gloves	Minimum distance of one meter needs to be maintained.
3	Temperature recording station	Record Temperature with hand held thermal recorder.	Low risk	Triple layer medical mask Gloves	
4	Holding area/ Isolation facility of APHO/ PHO	Interview & Clinical examination by doctors/ nurses	Moderate Risk	N-95 masks Gloves	
5	Isolation facility of APHO	Clinical management (doctors, nurses)	Moderate Risk	N-95 masks Gloves	
		Attending to severely ill passenger	High risk	Full complement of PPE	When aerosol generating procedures are anticipated
5	Sanitary staff	Cleaning frequently touched surfaces/ Floor/ cleaning linen	Moderate risk	N-95 mask Gloves	
6	Administrative staff	Providing administrative support	No risk	No PPE	No contact with patients of COVID-19. They should not venture into areas where suspect COVID-19 cases are being managed.

Hospital Setting

- Out patient department (Respiratory clinic/separate screening area)

S. No	Setting	Activity	Risk	Recommended PPE	Remarks
1	Triage area	Triaging patients Provide triple layer mask to patient.	Moderate risk	N 95 mask Gloves	Patients get masked.
2	Screening area help desk/ Registration counter	Provide information to patients	Moderate risk	N-95 mask Gloves	
3	Temperature recording station	Record temperature with hand held thermal recorder	Moderate Risk	N 95 mask Gloves	
4	Holding area/ waiting area	Nurses / paramedic interacting with patients	Moderate Risk	N 95 mask Gloves	Minimum distance of one meter needs to be maintained.
5	Doctors chamber	Clinical management (doctors, nurses)	Moderate Risk	N 95 mask Gloves	No aerosol generating procedures should be allowed.
6	Sanitary staff	Cleaning frequently touched surfaces/ Floor/ cleaning linen	Moderate risk	N-95 mask Gloves	
7	Visitors accompanying young children and elderlies	Support in navigating various service areas	Low risk	Triple layer medical mask	No other visitors should be allowed to accompany patients in OPD settings. The visitors thus allowed should practice hand hygiene

- **In-patient Services**

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	Individual isolation rooms/ cohorted isolation rooms	Clinical management	Moderate risk	N 95 mask Gloves	Patient masked. Patients stable. No aerosol generating activity.
2	ICU/ Critical care	Critical care management	High risk	Full complement of PPE	Aerosol generating activities performed.
3	ICU /critical care	Dead body packing	High risk	Full complement of PPE	
4	ICU/ Critical care	Dead body transport to mortuary	Low Risk	Triple Layer medical mask Gloves	
5	Sanitation	Cleaning frequently touched surfaces/ floor/ changing linen	Moderate risk	N-95 mask Gloves	
6	Other Non-COVID treatment areas of hospital	Attending to infectious and non-infectious patients	Risk as per assessed profile of patients	PPE as per hospital infection prevention control practices.	No possibility of exposure to COVID patients. They should not venture into COVID-19 treatment areas.
7	Caretaker accompanying the admitted patient	Taking care of the admitted patient	Low risk	Triple layer medical mask	The caretaker thus allowed should practice hand hygiene, maintain a distance of 1 meter

- **Emergency Department**

S.No	Setting	Activity	Risk	Recommended PPE	Remarks
1	Emergency	Attending emergency cases	Moderate risk	N 95 mask Gloves	When aerosol generating procedures are anticipated
2		Attending to severely ill patients of SARI	High risk	Full complement of PPE	Aerosol generating activities performed.

- **Pre-hospital (Ambulance) Services**

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	Ambulance Transfer to designated hospital	Transporting patients not on any assisted ventilation	Moderate risk	N-95 mask Gloves	
		Management of SARI patient while transporting	High risk	Full complement of PPE	When aerosol generating procedures are anticipated
		Driving the ambulance	Low risk	Triple layer medical mask Gloves	Driver helps in shifting patients to the emergency

ANNEXURE 9
COVID 19 PROTOCOL
DEPARTMENT OF ANAESTHESIOLOGY AND CRITICAL CARE MEDICINE
GOVERNMENT MEDICAL COLLEGE
KOTTAYAM

PROTOCOL FOR ANAESTHETIC MANAGEMENT IN THE SETTING OF COVID -19

(Adapted from recommendations of the ISA national advisory regarding COVID -19, ASA guidelines, Australian Society of Anaesthesiologists guidelines, Chinese Society of Anaesthesiology Task force on Airway management)

General preventive measures

All anaesthesia personnel to strictly follow:

1. Social Distancing – **1 metre** distance
2. Hand Hygiene with soap and water / Alcohol based sanitizer
3. Using surgical face masks and N 95 masks (for aerosol generating procedures).
(**N95 masks** offer protection against droplet and airborne transmission of 95% of particles more than 0.3 microns in size.
Surgical face masks protect against COVID-19 droplet transmission but do not protect against aerosolized small particles).
4. Mock drills for correct donning and doffing of Personal Protective Equipment (PPE) .

Category of patients

Category 1 - Confirmed cases

Category 2 - Suspects

- a) History of travel to / coming from endemic areas.
- b) Close contacts including Health Care Workers categorized as HIGH, MEDIUM and INTERMEDIATE risk as per CDC guidelines.

Category 3 - Others

Only EMERGENCY and SEMI EMERGENCY surgeries will be performed for all categories of patients.

I. For Confirmed and Suspected Patients (Category 1 and 2):

1. The emergency surgeries for Category 1 and 2 will be done in dedicated theatres; **COVID 19 – OT** in main hospital complex and **COVID – GOT** (Gyneac Theatre 4) in the gyneac complex.
2. The theatre with laminar flow will have separate entry and exits, donning, doffing and bath areas.
3. Any surgeries which can be waited till the quarantine period is over (*14 days in case of mild symptoms & 28 days in severe symptoms*), are to be postponed till then.
4. The surgical team should inform the Anaesthesia duty MO in charge of **COVID 19- OT /COVID – GOT** as soon as possible when the emergency surgery is planned.
5. There will be dedicated Anaesthesia teams in **COVID 19 –OT** and **COVID – GOT**.
6. These patients should be wheeled through separate/isolated corridors to the dedicated **COVID-19 OT** and **COVID-GOT**.
7. The patients should be wheeled directly in to the OT and should not stay in pre-medication room at all.

8. Brief history, quick PAC and Rapid Airway Assessment to be done by a senior anaesthesiologist in the theatre.

Rapid airway assessment

- (i) Past history of difficult airway
- (ii) Mouth opening (interincisor distance < 3cm)
- (iii) Thyromental distance (< 6cm)
- (iv) Mobility of head and neck
- (v) Neck circumference
- (vi) Modified Mallampati test (***Not recommended***)

II. For Others (Category -3)

The surgical team should inform the Anaesthesia duty MO in charge of **CEOT / GEOT (Gynaec –Theatre 1)** when the emergency surgery is planned.

Pre anaesthetic check-up in emergency theatre (CEOT/GEOT) for Category 3:

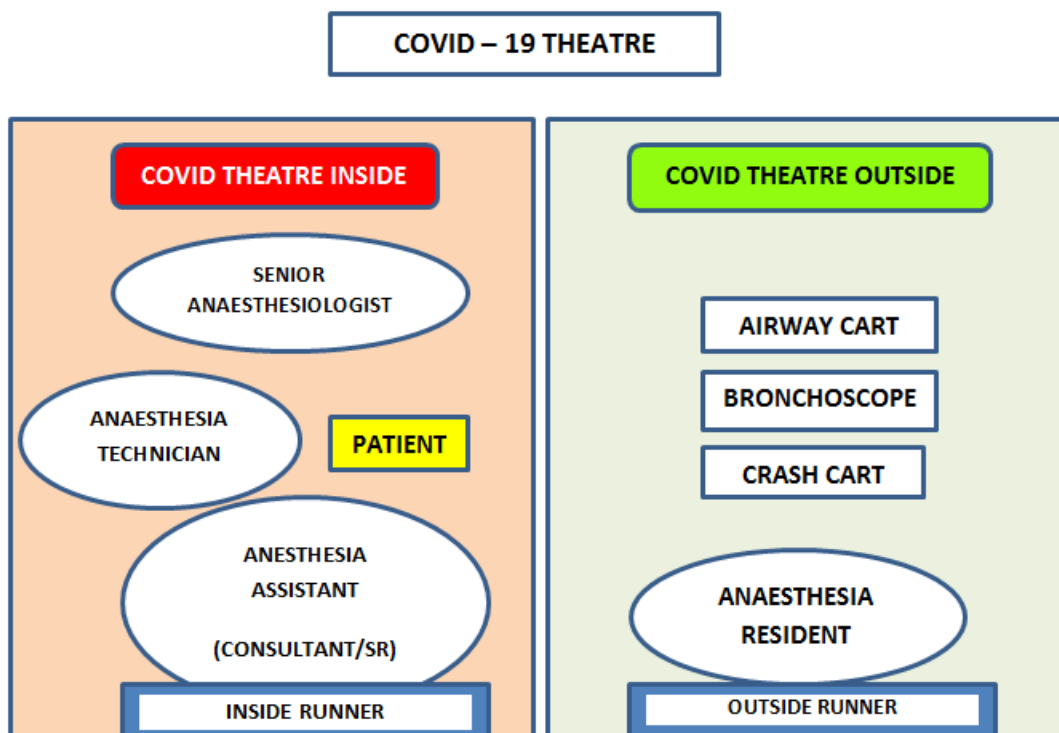
- 1. Wash your hands with alcohol-based sanitizer or soap and water frequently.**
- 2. Restrict the number of bystanders coming to patient receiving area. Only one attendant to be allowed with the patient.**
- 3. History of fever should be elicited/record patients' body temperature in the receiving area.**
- 4. All patients with cough should be immediately provided with a surgical mask at the reception.**
- 5. Take detailed PAC of all patients with special emphasis about international travel or domestic travel in the affected areas in last 14 days by the patient or his family members.**
- 6. Enquire about history of cough, fever and sore throat and a careful chest auscultation.**
- 7. All reusable equipment stethoscopes, BP instruments etc., should be frequently sanitized using alcohol wipes.**
- 8. Hand hygiene is a must for all personnel in between individual patient contact.**
- 9. Patient receiving area should be cleaned daily by thoroughly wiping the surfaces of furniture, equipment and floor according to the local disinfection protocols.**

COVID 19- THEATRE PREPARATION (Strictly follow theatre preparation checklist) :

1. Dedicated Operation Theatres to be used for all Category 1 and 2 patients which are clearly labelled as **“COVID-19 OT”/ “COVID – GOT”** .
2. Anaesthesia workstation should be covered with transparent plastic drape.
3. All operation theatre staff should wear PPE.
4. PPE should include one-piece protective gown/coverall, proper size N95 mask, goggles, double gloves, boot cover, face shield (for high risk aerosol generating procedures like intubation). Wear surgical apron inside and protective gown outside.

5. ANAESTHESIA TEAM

Senior Anaesthesiologist (most experienced)
Anaesthesia consultant/SR - *inside runner*
Anaesthesia Resident - *outside runner*
Anaesthesia technician



6. DONNING SEQUENCE (Strictly follow donning checklist) should be done under strict supervision.

Inner gloves → Boot cover → Inner surgical gown → Outer protective (coverall) → N95 mask → Goggles → Head cover → Outer gloves → Face shield (for high risk aerosol generating procedures).

7. Place all equipments and drugs required for the anaesthetic management in the **COVID tray** and avoid handling of the drug trolley during the case.

8. The equipments arranged in the COVID TRAY will be as per the decision of the senior anaesthesiologist after assessing patient's airway.

9. The Airway cart, bronchoscope and crash cart including defibrillator should be kept outside the theatre and to be handed over by the *outside runner* to the *inside runner* when necessary.

10. COVID TRAY (Strictly follow Covid tray checklist)

- a. Place video laryngoscope with disposable blades
 - Use glass cubicles or transparent plastic covers if video laryngoscope is not available.
- b. Macintosh direct laryngoscope
- c. Bougie/stylet
- d. 10ml syringe
- e. Tube ties
- f. AMBU Bag
- g. ET tube of appropriate sizes
- h. 2nd generation supraglottic airway devices
- i. Oropharyngeal airway/nasopharyngeal airway
- j. Anatomical face mask
- k. Suction devices
- l. Nasal cannula
- m. HME filter – 2 in nos.
- n. Dedicated breathing circuit
- o. ETCO₂ tubings
- p. Ziplock bags (*one small and one large*)
- q. Equipments for regional anaesthesia and central line insertion (*only if required*)

11. Two high quality Heat and Moisture Exchange Filters (HMEFs). First, between tracheal tube and breathing circuit; and the second between expiratory limb and anaesthesia machine.

12. ASA standards anaesthesia monitoring to be instituted.
13. If USG is used, cover the USG machine with transparent plastic sheet and ensure the entire length of probe is inside the camera cover.
14. Ensure adequate premedication with specific emphasis on antisialagogue and antiemesis.
15. Prefer regional anaesthesia, where ever possible. A surgical mask must be applied to the patient throughout the length of stay in the operation theatre.
16. In case supplementary oxygen is needed, the oxygen mask is applied over the surgical mask.
17. Cover the patient's nose and mouth with two layers of wet gauze to block the secretions.
18. Encase the patient's head and upper torso inside a transparent plastic sheet and perform the subsequent procedures under the plastic sheet.
19. Place the mask over the gauze and pre-oxygenate for five minutes with 100% oxygen.
20. Avoid high flow oxygen to prevent aerosolization.
21. Perform Rapid sequence Induction with appropriate anaesthetic agents, according to the hemodynamic condition (Fentanyl + Succinyl Choline are recommended) (Midazolam + Etomidate, if hemodynamically unstable and Midazolam + Propofol, if hemodynamically stable) .
22. Avoid manual ventilation to prevent aerosolization of virus from airways. If manual ventilation is required, apply small tidal volumes.
23. Ensure adequate neuromuscular blockade to avoid bucking that can increase aerosolization.
24. Disconnect the mask with HME filter from circuit during laryngoscopy.
25. Tracheal intubation should be done by the most experienced anaesthesiologists in the team.
26. Video-laryngoscope to be used for improving intubation success.

27. Avoid awake fiberoptic intubation whenever possible. Nebulisation with local anaesthetic will aerosolize the virus. FOB is strictly restricted to difficult airway scenario.
28. Immediately inflate the tracheal tube cuff before starting ventilation.
29. Confirm ET tube position using ETCO₂.
30. Avoid auscultation and perform a visual inspection of chest movements.
31. Re-sheath the laryngoscope blade immediately post intubation with the outer glove worn by the operator and discard it in the zip lock bag.
32. Put on a new outer glove after applying handrub on the inner glove.
33. Use low gas flows and ventilatory circuits with HME filters. Limit the ventilatory disconnections and, if needed, do at end expiratory phase.
34. Ensure lung protective strategies for ventilation.
35. Give bolus dose of NDMR immediately after confirmation of ET tube position.
36. Ensure adequate depth of anaesthesia and good muscle relaxation intraoperatively.
37. Supraglottic airway devices should be used only in 'cannot ventilate' situations.
38. Tracheal extubation should be done on table, as far as possible.
39. Encase the patients head and upper torso inside a transparent plastic sheet/dedicated box (undercover *technique*) and perform the extubation under the plastic sheet.
40. Extubate under deep plane and ensure recovery on table.
41. Discard the ET tube along with plastic sheet in clinical bins.
42. Apply nasal prongs with low flow oxygen .

43. Apply surgical mask and disposable operating sheet onto the patient before shifting to isolation ward/ICU after ensuring the patient is fully awake and hemodynamically stable.

44. During transfer, the team should wear proper PPE outside the operating room.

45. If the patient is kept intubated, ensure **adequate muscle relaxation** and **clamping of ET tube** before disconnection of circuit from ET tube.

46. A *single-patient-use Ambu bag* with HME filter attached must be used during transfer. Do not use a ventilator during transfer.

47. Discard breathing circuit, mask, tracheal tube, HME filters, gas sampling line and soda lime after every patient. Water trap to be changed if it becomes potentially contaminated.

48. Seal all used airway equipment in a double zip-locked plastic bag. It must then be removed for decontamination and disinfection.

49. Theatre should be left for 30 minutes after use and a minimum of one hour is required for decontamination of all surfaces, screens, cables, monitors and anaesthesia machine with 2 to 3% hydrogen peroxide spray disinfection, 2-5 g/l chlorine disinfectant, or 75% alcohol wiping of solid surfaces of the equipment and floor. The decontamination of the theatre to be done according to the hospital policy.

50. **DOFFING: (Strictly follow doffing checklist)** should be done under strict supervision.

a) Hand hygiene should be ensured in between each steps of doffing.

Hand hygiene → **Outer gloves** → *Hand hygiene* → **face shield (if worn)** → *hand hygiene* → **protective coverall** → *Hand hygiene* → **inner surgical gown** → *Hand hygiene* → **goggles** → *Hand hygiene* → **N95 mask** → *Hand hygiene* → **inner glove** → **shower including disinfection of EAC, nose and mouth.**

INFECTION CONTROL AND AIRWAY MANAGEMENT CHECKLISTS IN THE SETTING OF COVID-19

DONNING SEQUENCE

BEFORE DONNING:

1. Is the donning performed in the specified donning area?
2. Are you identified? (Names and designation of entering staffs must be strictly documented in the dedicated register)
3. Does the PPE kit contain gown, double gloves, inside apron, N95 mask, goggles, and boot cover?
4. Whether proper hand washing been done with soap and water prior to donning?
5. Whether ornaments, watch, mobile phones and stethoscope removed?
6. Is the protective coverall inspected for damage (tears, malfunction of zip)?

DONNING SEQUENCE

1. In OT and CCU, Anaesthesia personnel and staff will be already in theatre dress with OT cap.
2. The first step in donning is **hand hygiene with soap and water followed by alcohol-based hand rub.**
3. Then follow this sequence:
Inner gloves → Boot cover → Inner surgical gown → Outer protective (coverall) → N95 mask → Goggles → Head cover → Outer gloves → Face shield (for high risk aerosol generating procedures).
4. Thorough visual inspection by the trained nursing officer for any visible gaps to be sealed by adhesive tapes.

AFTER DONNING

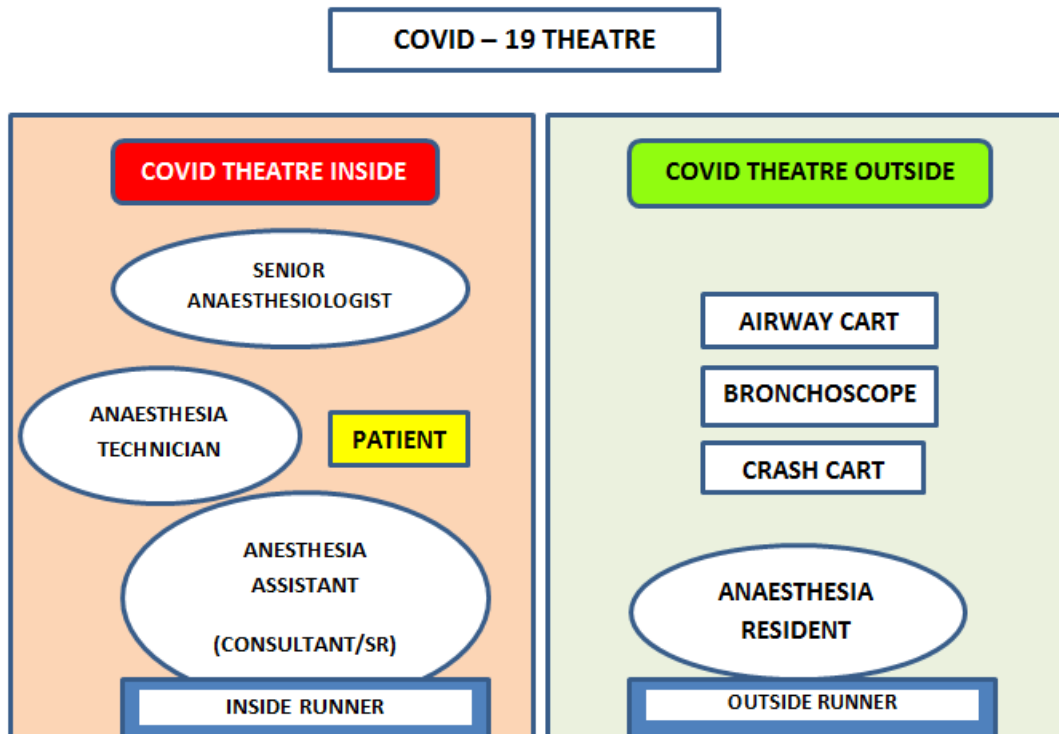
1. Was the donning done under the **supervision of an experienced assistant?** (Nurse in charge)
2. Is the gown fully covering from neck to ankles and arm to end of wrists?
3. Is the N95 mask properly worn?

4. Have you performed the fit check of your N95 mask and ensured absence of side leak by blow test?
5. Are the goggles worn correctly?
6. Are your hands double gloved?
7. Are your names displayed on the gown? (front and back)
8. Are the gaps strictly observed and sealed using adhesive tapes?
9. Are there any visible damages in your gloves?
10. Whether thorough buddy check has been done?

AIRWAY MANAGEMENT CHECKLIST

BEFORE INTUBATION:

1. Is the room equipped with laminar flow/negative pressure isolation?
2. If normal pressure room, are the air conditioners switched off?
3. Is an experienced assistant (anaesthesiologist/critical care physician) and anaesthesia technician available?
4. Are the non-essential equipments removed from room?
5. Are the proper disposal bins available inside room?
6. Are the **COVID ALERT** signs displayed on every entrance?
7. Is the Theatre Front Desk prepared for documentation of cases?
8. Are your team members ready?
 - a. Senior Anaesthesiologist (**Team leader**)
 - b. Anaesthesia Assistant (Consultant /Senior Resident) (**Inside runner**)
 - c. Anaesthesia Resident (**Outside runner**)
 - d. Anaesthesia Technician



9. Is **COVID tray** available inside room?

COVID TRAY CHECKLIST

1. Video laryngoscope with disposable blades -1
2. Macintosh direct laryngoscope with appropriate blade size -1
3. Bougie and stylet – 1 each
4. 10ml syringe-1
5. Tube ties
6. AMBU Bag-1 (*to be kept **outside***)
7. ET tube of appropriate sizes (*only calculated size to be kept inside*)
8. 2nd generation supraglottic airway devices (*only calculated size to be kept inside*)
9. Oropharyngeal airway/nasopharyngeal airway (*only calculated size to be kept inside*)
10. Anatomical Face mask-1
11. Suction devices – Closed Suction in critical care setting
12. Nasal cannula
13. HME filter – 2
14. Dedicated breathing circuit (*Bains/JR to be kept **outside**, only ventilator circuits inside*)
15. ETCO2 tubings
16. Ziplock bag- one small, one large
17. Equipments needed for regional anaesthesia and central insertion (*only required equipments to be kept inside*)

10. Is double Ziplock bag available for used encasing laryngoscope?
11. Is your anaesthesia machine/ ventilator checked and fully covered with transparent plastic sheet and checked?
12. Whether airway cart, bronchoscope (if available) and crash cart ready outside room?
13. Are the ASA standard monitors available?
14. Are the induction and emergency drugs loaded (including flush) and available inside room?
15. Is cannulation gear prepared?
16. Is the clean drug trolley available outside the theatre?

PATIENT TRANSPORTATION TO THEATRE

1. Is the patient wearing surgical face mask until preoxygenation is started? (for GA)

(For regional, patient wears surgical face mask throughout)

2. Is the patient assessment done inside the theatre?
3. Is the rapid airway assessment done?

DURING INTUBATION

1. Is staff other than those involved in airway management out of room?
2. Is the video laryngoscope/ Macintosh laryngoscope checked and kept ready?
3. Is the suction working?
4. Whether hydrophobic HME filters connected to machine end and patient end?
5. Is wet gauze applied (2 nos) applied onto the patient's face covering nose and mouth?
6. Is the patient covered with transparent plastic sheet/specially designed box? (Undercover technique for intubation)
7. Whether appropriate size face mask applied?
8. Is the patient preoxygenated for 5 minutes with 100% oxygen?
9. Whether the team is ready for RSI?

10. Are adequate doses of sedatives, anaesthetic agents and muscle relaxants given?

11. Is bag and mask ventilation avoided?

12. Is the mask with HME filter disconnected from circuit during laryngoscopy?

AFTER INTUBATION

1. Is the cuff fully inflated soon after intubation?

2. Is the tube position confirmed using ETCO₂?

3. Is the bolus dose of NDMR given?

4. Are your outer gloves removed soon after intubation?

5. Is a new outer glove worn after applying hand rub on to inner glove?

6. Is the laryngoscope blade resheathed in a double Ziplock bag?

7. Are used airway equipments properly disposed?

8. Is adequate depth of anaesthesia and good muscle relaxation maintained?

9. Are the equipments used for regional techniques, central insertion properly disposed?

10. If ultrasound used, is the machine covered with a transparent plastic sheet?

11. Is the entire length of USG probe covered in camera cover?

EXTUBATION

1. Is the extubation and recovery ensured in the operation theatre?

2. Is staff other than those involved in airway management out of room?

3. Is the patient covered with transparent plastic sheet/specially designed box to prevent aerosolisation?

4. Is nasal prongs applied before extubation?

5. Is extubation done under a deep plane?

6. Is the used tube along with plastic cover/box properly discarded?

7. Is the nasal prongs applied with oxygen on flow?

8. Is the surgical mask applied onto the patient?

TRANSFER OF INTUBATED PATIENT TO ICU:

1. Is the patient paralysed before disconnection of breathing circuit?
2. Is the ET tube clamped during disconnection of the circuit?
3. Is the HME filter attached to the AMBU BAG during reconnection?
4. Is the pathway cleared for transportation?
5. Are all the personnel involved in shifting DONNED (full PPE) and ready?
6. Are the names and designation of personnel involved in transportation documented in the transportation register?

DOFFING CHECKLIST:

1. Is the doffing done in the dedicated doffing area?
2. Is proper disposal bins available?
3. Whether a trained inspector available for strict supervision of doffing?
4. Is hand wash available?
5. Is hand hygiene ensured in between each steps of doffing?
6. Is the “dirty chair” (to be frequently disinfected) available?
7. Is the following sequence followed?

DOFFING SEQUENCE

Hand hygiene → **Outer gloves** → *Hand hygiene* → **face shield (if worn)** → *hand hygiene* → **protective coverall** → *Hand hygiene* → **inner surgical gown** → *Hand hygiene* → **goggles** → *Hand hygiene* → **N95 mask** → *Hand hygiene* → **inner glove** → **shower including disinfection of EAC, nose and mouth.**

2. Is the PPE disposed in a clinical waste bin?
3. Are the airway equipments, HMEs, breathing circuits, needles, syringes, iv fluids properly disposed?
4. Is the theatre left empty for at least half an hour after use?
5. Are the soda lime and the ventilator circuits changed?
6. If a health worker enters OT within 30 minutes after patient leaving the room, is full PPE worn?
7. Is there a time gap of minimum 1 hour between cases for thorough decontamination?
8. Is the decontamination of all surfaces, screens, cables, monitors and anaesthesia machine done with 2-3% hydrogen peroxide spray / Chlorine disinfectant(2-5g/L) / 75% Alcohol wiping of solid surfaces of the equipment and floor?
9. Is the personnel logbook of clinical exposures by staff documented and completed?

PROTOCOL FOR CRITICAL CARE MANAGEMENT IN THE SETTING OF COVID-19

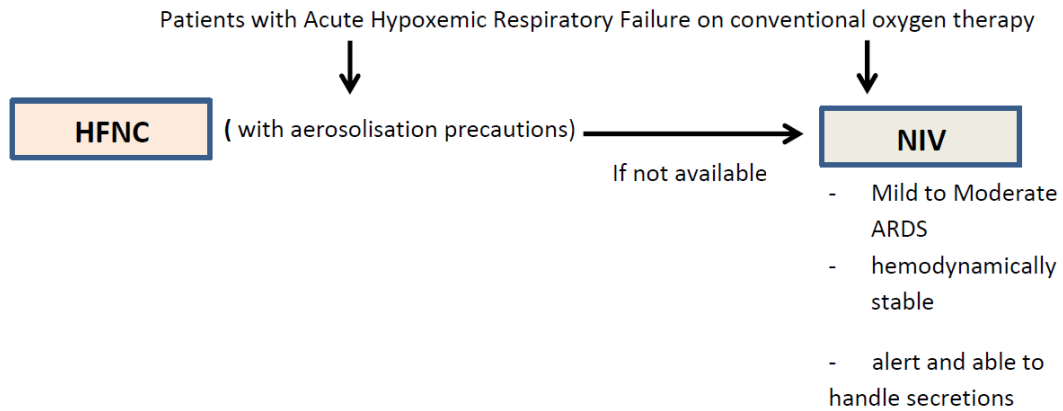
(Adapted from recommendations of the Indian Society of Critical Care Medicine)

General measures in confirmed cases of COVID -19:

1. Maintain a target oxygen saturation **>94%** in hypoxemic patient's supplemental oxygen.
2. After initial stabilisation, oxygen supplementation should target an SpO₂ of >90% in adults and 92% to 95% in pregnant adults.
3. Preoxygenate for 5 minutes with 100% oxygen before intubation (to be done by the Intensivist)
4. Cover the patient's upper torso with transparent plastic sheet/dedicated box (under cover technique) for intubation and extubation.
5. Intubation according to the department guidelines in the setting of COVID -19.
6. Patients with septic shock should receive fluid resuscitation along with inotropic support.
7. Vasopressor – Start with NE, if necessary, add Vasopressin / Epinephrine to maintain MAP.
8. All patients should receive empiric antibiotics to cover for all suspected organisms including influenza, as early as possible, preferably within the first hour

Risk factors and Prognostic Determinants

1. Higher body temperature is associated with more severe disease and higher fatality.
2. **Lymphopenia:** lymphocyte count of less than 2000/cu.mm was associated with poorer outcomes.
3. Neutrophil / lymphocyte ratio greater than 2 was associated with higher mortality.
4. LDH > 245 U/L
5. HS-Cardiac Troponin > 28 ng/ml
6. Prothrombin time > 16 s
7. Serum ferritin > 300 µg/L vii)
8. D Dimer
9. CRP>100 mg/dl



Patients on HFNC and NIV should be thoroughly monitored for worsening of respiratory conditions and need of Intubation

Intubation should not be delayed in such cases.

Invasive Mechanical Ventilation

1. Lung protective strategy (**4-8ml/kg** predicted body weight).
2. Plateau pressure goal: **≤ 30 cm H₂O**
3. Check Pplat (**0.5 second** inspiratory pause), at least every **4h** and after each change in PEEP or VT.
4. If Pplat > **30 cm H₂O**: decrease VT by **1ml/kg** steps (minimum = **4 ml/kg**).
5. Consider use of incremental FiO₂/PEEP combinations.

Proning

1. If patient does not show improvement in oxygenation, then proning should be tried, preferably earlier.
2. 16-18 hrs of proning is advised.
3. If there is a contraindication to proning, then recruitment manoeuvre can be tried.
4. Follow thorough aerosol precaution while proning and take utmost precaution to avoid disconnection of ventilator circuit.

Medical Management

1. Nonsteroidal anti-inflammatory drugs like ibuprofen are absolutely contraindicated.
2. Closed suction and HME filters should be preferred to prevent aerosol spread.
3. All inhaled medicines (bronchodilators) should preferably be given by metered dose inhalers (MDI) so as to reduce the chances of aerosolization.

CARDIOPULMONARY RESUSCITATION

(Adapted from recommendations of ISA National advisory regarding Covid -19)

1. “Protected Code Blue” should be followed.
2. Strict use of N-95 and PPEs during resuscitation.
3. All the team members should wear PPEs.
4. There should be disposable resuscitation packages instead of trolley.
5. Enter the isolation bringing the defibrillator and packages along when “protected code blue” is activated.

ANNEXURE-10

Equipments, Supplies and Drugs

DETAILS OF EXISTING ICU BEDS/VENTILATORS

<u>No</u>	<u>Name of ICU</u>	<u>Available Beds</u>	<u>Available Equipments</u>
1	MCCU & SCCU	24	20 VENTILATORS
2	TRANSPLANT ICU	4	0 VENTILATORS
3	TRAUMA ICU	15	6 VENTILATORS
4	MEDICAL ICU	11	7 VENTILATORS +1
5	RESPIRATORY ICU	5	2 VENTILATORS, 2 NIV
6	SURGERY ICU	18	18 VENTILATORS
7	CARDIOLOGY ICU	20	6 VENTILATORS
8	CVTS ICU	24	18 VENTILATORS
9	THORACIC SURGERY ICU	8	
10	GYNAECOLOGY ICU	6	4 VENTILATORS
11	NICU	8	3 VENTILATORS

List of Emergency requirement drugs for COVID-19 critically ill

❖ Specific drugs

Sl No	Drugs	Dosage	Tab/Injections per person	Approx requirement
1.	Lopinavir-Ritonavir combination	2 tab BD for 10 days	40	
2.	Hydroxychloroquine	400mg BD x 2days 200mg BD x3 days	14	
3.	Tocilizumab			
4.	Oseltamivir	150mg BD	28	

❖ General care

Sl no	Drugs	Size/Specs	Per person	Approx requirement
1.	Oxygen face mask	Adult	1	500
2.	Oxygen Mask with Reservoir bag and Non-Rebreathing valve	Adult	1	100
3.	Nasal prongs	Adult	1	500

4.	Venturi mask	Adult	1	500
5.	Non-Vented Adult NIV masks	Small Medium Large		30 50 30
6.	Finger Pulse Oximeter		1	100
7.	Transportation monitors		1	5
8.	Disposable Ventilator tubings	1 packet	1	500
9.	HME filter with catheter mount		1	1000
10.	Closed suction set	1 packet	1	200
11.	Endotracheal tubes with subglottic suction	7.0 7.5 8 8.5		100 100 100 100
12.	Video laryngoscope		1	1
13.	Cuff pressure monitoring manometer			10
14.	Triple lumen central venous catheters		1	200
15.	DVT stockings, medium size, pneumatic		1 pair	500
16.	Laryngoscope with blades, with LED bulbs		1	10
17.	AMBU BAG with Mask Oxygen Reservoir - adult		1	10
18.	High Flow nasal Cannula machine		1	4
19.	ECMO machine with tubing and cannula		1	2
20.	Non-invasive ventilators		1	5
21.	Pillows needed for prone positioning		4	10 sets
22.	PPE equipment and gloves		1	

❖ ARDS –Intubation and ventilation drugs

SI No	Drugs	Dosage	Per person	Approx requirement
1.	Inj Rocuronium	1.2mg/kg stat	50mg vials	200
2.	Inj Fentanyl	50ug/mL	2mL vials	1000
3.	Inj Midazolam	.15mg/kg	10mL vials	1000
4.	Inj Succinylcholine	2mg/kg	10mL vials	500
5.	Inj Deriphylline	100mg/8hrly	2ml vials	1000

6.	Inj Vecuronium	.12mg/kg and 1-2uug/min infusion	10mg vials	500
7.	Inj cisatracurium	20mg vials	2	100
8.	Inj Methyl prednisolone	40 mg vials	BD-TID	150
9.	Inj Ketamine	1mg/kg		100
10.	Inj Propofol		1 amp (20ml)	200

❖ Additional drugs

Sl No	Drugs	Dosage	Per person	Approx Requirement
1.	Inj Piperacillin Tazobactam	4.5 IV 6hrly 7 days	28 vials	1000
2.	Inj Linezolid	600 mg BD	14 vials	500
3.	Inj Amikacin	500-1000mg OD	7 vials	500
4.	Inj Meropenam	1-2g Q 8hrly	21 vials	1000
5.	Inj Polymyxin B	25000 U/kg loading and 15000 U/kg BD	16 vials	500
6.	Inj Cefoperazone 1 g with Sulbactam 1g	2g BD	14 vials	1000
7.	Azithromycin Tablet	500 OD	4 tabs	1000
8.	Inj Ceftriaxone	2g OD	14 vials	500
9.	Inj Amoxiclav	1.2g Q 8hrly	21 vials	1000
10.	LMW Heparin	1mg/kg OD	7 vials	1000
11.	Inj Norepinephrine	4mg/2mL		500
12.	Inj Adrenaline	1:1000	1mL vial	1000
13.	Inj Vasopressin	0.03U	20U/mL	200
14.	Inj Soda bicarbonate	7.5%	75mL	500
15.	Inj Amiodarone		150/3mL	200
16.	Inj Fluconazole		400mg OD	200

ANNEXURE 11
COMMITTEE MEMBERS

Core Group 1 - Members

Dr. Jayakumar	Superintendent
Dr. Lijo	ARMO
Dr. Saritha Shenoy	Faculty
Mrs. Prasanna	Nursing Superintendent
Mr. Ullas	Health Supervisor
Mr. Biju	Lay Secretary
Mr. Ajayakumar	Sergeant

Core Group 2 - Dr. Renjin, Dr. Manoj

Core group 3 -Dr. Rajesh, Dr. Murali

- **Education and Training** - Dr. Murali, Dr. Saritha, Dr. Jose Stanley,
Dr. Kiran Vishnunarayanan, Dr. Sajitha, Dr.VR.Krishnakumar
- **Preparing and implementation of SOPs** – Dr. Irshad, Dr. Kiran, Dr. VR.Krishnakumar,
Nursing Education Wing
- **Staff welfare and motivation** - Dr. Shibu George Dr. Saritha Shenoy, RMO, Students
Union and Nursing Education Wing
- **Cleaning, Disinfection, Waste disposal and Surveillance** –Dr. Beena, Infection
Control Wing, QIC and Housekeeping
- **Communication and reporting** – Core group 1&3
- **Supplies and stock** including O2 –Core group 2
- **Accommodation, transportation committee**- Vice Principal, RMO, Hostel wardens,
Clerical staff

- **Staff and patient counselling**-Dr. Satheesh, Dr. Ganga, Dr. Nisha
- **HR**-Dr. Radha, Dr. Mary Chacko, RMO, Dr. Sajitha
- **Grievance Committee**-Dr. Sajith Kumar /Dr. Sobha A/Dr. Renjin will look into all staff grievances.
- **Covid Academic Committee**-Dr. Suresh Bhatt, Dr. Geethadevi, Dr. VR.Krishnakumar , Dr. KannanNarayanan , Dr. Jo eMartin
- **Covid Administration Support**-Dr. Rajeev, Dr. Shajul

ANNEXURE 13

- **TEAM-A**

**COVID CONTROL ROOM MEMBERS UNDER THE CHAIRMANSHIP OF PRINCIPAL,
GOVERNMENT MEDICAL COLLEGE, KOTTAYAM**

These are the members of Covid control room which has started functioning from 25-3-2020 as of now till further notice.

NAME	DESIGNATION	CONTACT NO
Dr. JOSE JOSEPH	PRINCIPAL	9496224504
Dr. JAYAKUMAR.T. K	SUPERINTENDENT	9447355841
Dr. RAJESH.P. S	DEPUTY SUPERINTENDENT	8848864233
Dr. RENJIN. R. P	RMO	8606055555
Dr. LIJO MATHEW	ARMO	9447419843
Dr. MURALI.T. V	ASSISTANT PROFESSOR, SURGICAL ONCOLOGY	9895658144
Dr. SARITHA SHENOY	ASSOCIATE PROFESSOR, PHYSIOLOGY	9847441503
Dr. HARISANKAR K. N	ASSISTANT PROFESSOR(PHARMACOLOGY)	9446560295
KATHRINA	NURSING SUPERINTENDENT	9400151395
DAISAMMA P. T	HEAD NURSE	8330022398
SINI	PRO	8547491094
ANSENNA P. A	PRO.T	8848153368
SRUTHY M	PRO.T	8281685746
Dr. ABEL JAISON	JUNIOR RESIDENT(BIOCHEMISTRY)	9048064928
Dr. KEVIN ROCH C	JUNIOR RESIDENT(PHARMACOLOGY)	9496695776
Dr. CUKKU SARA BENNY	JUNIOR RESIDENT(BIOCHEMISTRY)	8547705475
Dr. ASWATHY V A	JUNIOR RESIDENT(ANATOMY)	9400278939
Dr. ARYA.S	JUNIOR RESIDENT(PHYSIOLOGY)	9400212295
Dr. ANN MARY	JUNIOR RESIDENT(ANATOMY)	8547168904

- **TEAM - B**

**COVID CONTROL ROOM MEMBERS UNDER THE CHAIRMANSHIP OF VICE PRINCIPAL,
GOVERNMENT MEDICAL COLLEGE, KOTTAYAM**

Dr. JAYAKUMAR.K. P	VICE PRINCIPAL	9447053794
Dr. MANOJ	DEPUTY SUPERINTENDENT	8078298449
PUNNOSE GEORGE	PRO	9496521229
THOMAS.P	PRO	9745109721
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